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MOTOR BOATING

Rounding the buoy—There is always plenty of excitement in store for the man in the stake boat.

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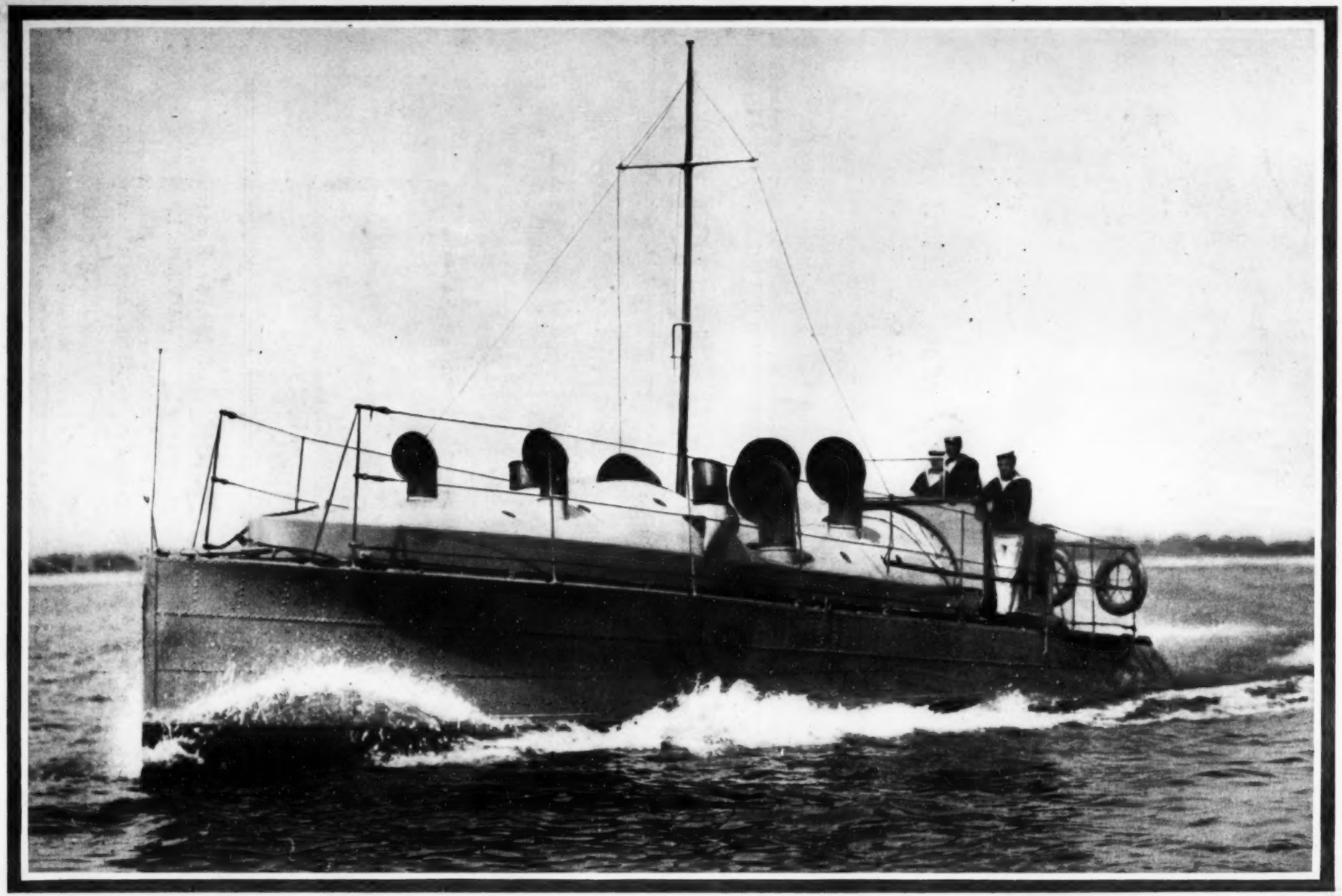


The Motor Boat for War—H. M. S. Mercury II, a British motor -driven boat. Her hull is constructed almost entirely of steel, as is also her superstructure.

MOTOR BOATING

THE NATIONAL MAGAZINE OF MOTOR BOATING

Cruising In an Open Launch.

The Little-Appreciated Cruising Possibilities of the Small Motor Boat Without a Cabin. The Condensed Experiences and Suggestions of One Who Has Tried It.

By Bradford Burnham.

CRUISING and camping are a whole lot alike. You can camp out on the water—in a house-boat—and you can cruise on shore, for we've all, at least, heard of "sea-going barouches" and of schooners that have never seen a drop of water. The call of the sea and the call of the trail alike set the nerves a-tingling and alike demand obedience. The woods-lover hears it, pauses only long enough to get this week's manila envelope, then grabs rod and gun and beats it for the wilds. It hits the lover of the crested wave and stinging spray when he hears the rich, mellow whistle of the liner creeping up the bay, and he promptly points his rudder at the City, with all its continual noise and crowds. Both in cruising and camping, too, the roving, gypsy spirit is dominant, and continually urges you to get on farther and farther. The maximum amount of fun comes with a frequent shift of scene. Old man Cowper surely hit the bulls-eye with his "Variety's the very spice of life that gives it all its flavor." A limited horizon suggests the confinement of those sky-scraping prisons you left behind you.

Now, most fellows who own the ordinary kind of open launch, twenty or twenty-five feet long, with a four to six mule power "put-put" (or is it a "chug-chug"), aboard—and what heaps of them there are—, have an idea that because they don't happen to possess a raised deck, mahogany, gilded cabin cruiser or a steam yacht, they must stay in their own back yard and radiate around their home port, with a half-day's run as the length of each radius. But here's where they're dead wrong, and if they'll overlook the frequent recurrence of a certain capital letter, I'm going to show them so before I get through.

Somewhere around these pages you'll see a picture of my boat. It's a fairish picture of the noble craft, though a most undignified one of her captain, who happened to be in swimming and peeking around the bow, just as the shot went off. She's a good specimen of the plain, every-day open launch, the kind the fishermen and lobstermen use. In fact, in a former life she spent many of her days off Montauk after blues, where even the doughty Marbleheaders look worried at times. So she is very sturdily built, is a bit high bowed, and inclines decidedly toward corpulency, for she has a beam of seven feet to her length of twenty-two. She is blessed with a remarkably reliable engine—a 4½ h. p. Lathrop, which requires little besides painting occasionally to drive her along at about eight miles per. Such are the only requisites needed to start with on a month's cruise, if the ship-mates be three in number, of a forgiving disposition, and are fond of eggs.

Nature has been kind in giving us a plentiful supply of splendid rivers and harbors for small boat cruising, and the Government is showing signs of loosening up in improving and extending our artificial waterways, which even as they are now, connect things up for the small boat surprisingly and help out a lot. With the outfit I have described—which ought to come within the $500 mark if bought new, as mine wasn't—I have had the most fun thus far since landing upon this ball of ours which, thank Heaven, is more water than land. A part of each of my college vacations was taken up with a long cruise of a month or so, and I have taken a number of shorter ones besides. One summer it was up the Hudson, through Champlain Canal, and up (or, rather, down) the beautiful lake of that name nearly to the Canadian line.

Long outside runs were often made by Querida.

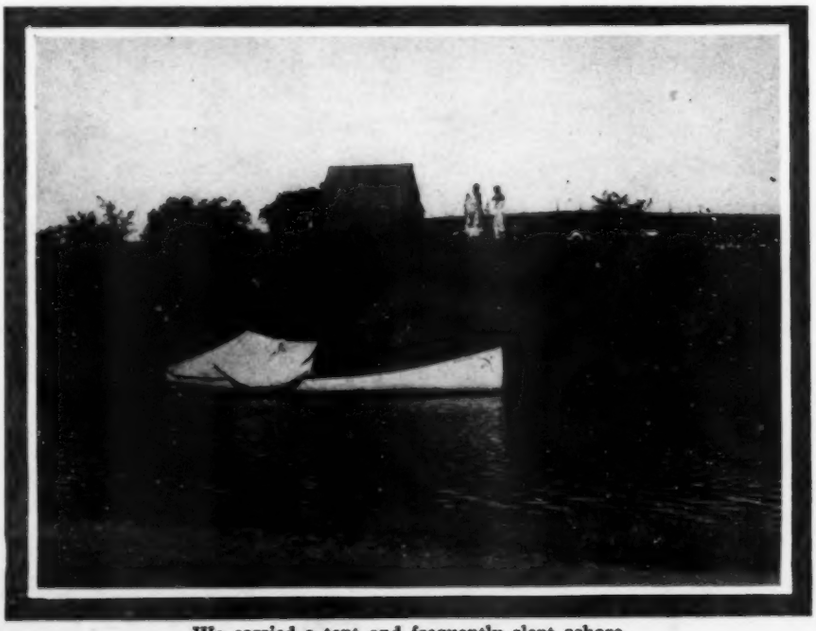
Querida, an open cruiser—not beautiful, but sound and seaworthy. Find her skipper.

Another summer took the valiant vessel six hundred miles from home when she went to take in the Jamestown Exposition, going down by the well-known inside route. Other cruises, shorter but not less keen, have been up the Hudson and Connecticut rivers, meandering along the borders of the Sound, or exploring the Gardiner's Bay region. So Querida (get out your Spanish dictionary) has traveled far for one so small (I cannot say "of such a tender age"), and easily holds the distance record of the fleet at her home port of Norwich, Connecticut, at the head of the Thames River, which is famed far and wide for the beauty of its scenery and for the Yale-Harvard regatta held each year upon its surface.

Most everybody admits that Long Island Sound is about the finest cruising spot anywhere between the poles, and I heartily agree with most everybody. I have wandered around in the archipelago of Puget Sound, have skimmed the iridescent surfaces of Lake Tahoe, Lake George and Lake Lucerne, jogged about the Solent and the Isle of Wight, and cruised among the bugeyes of Chesapeake Bay, but Long Island Sound has them all beaten and I've always been glad to get her familiar water under my keel again. She is the very place for the small boat cruiser. Let's take a five minutes' jog around her in my aforementioned twenty-two.

New London harbor is universally acknowledged the queen of harbors for the yacht, be she large or small, sail, steam or oil, and she certainly deserves this distinction. But the small boat cruiser will keep rather shy of the thickly populated harbors if he takes my advice, and if in this vicinity will throw over his hook in West Harbor, Fisher's Island. Here is perfect quiet, with no disturbing swell, noise or inquisitive prowler, and the bugle notes from the fort sound enchanting as they are borne through the calm air. From here it's but a short run *across* the Race (watch the wind and tide here, you twenty-footer) into Gardiner's Bay, and then what a field there is—with Shelter Island to circumnavigate, Gardiner's Island, remnant of the paleozoic age, to inspect, and the Peconics to take a look into. Greenport is a good place to provision and gasoline. It has an aristocratic, fourth-rate hotel, perhaps you know it. I say aristocratic for I was refused admittance to its dining-room one wet day because I had no coat over my perfectly good, greasy, prehistorically white sweater, until I borrowed the proprietor's from its peg in the hall. Proprietors are privil-edged characters and don't have to wear coats.

We'll leave the Shelter Island region by Plum Gut, which the twenty-footer can negotiate all right in the ordinary peaceability of summer zephyrs. If a rowdy wind is rubbing the tide the wrong way in here, however, better view the scene from afar. I didn't once, and a wave struck the rudder so savagely that the steering wheel was broken off. In the next thirty seconds we did an act that would put both the stunts of Annette Kellerman and the automobile lady who does the loop-the-loop in the circus, far into the deepest shadow. Fnally we got our emergency tiller installed and wallowed away from the rip as fast as possible.



We carried a tent and frequently slept ashore.

The northern shore of Long Island westward from Orient Point offers no special attrac-

tions or favorable anchorages, so we'll leave it to the skeets and run across to Saybrook, starting point for the fifty-mile run up the Connecticut River. If you take this run you'll need charts, for the buoys are nil and the range lights scarce. Ordinarily on the Sound a coast pilot and the big Sound charts are all-sufficient. If your engine is boxed in, which I emphatically recommend, the cover of the box makes a pretty fair chart table as per picture herewith.

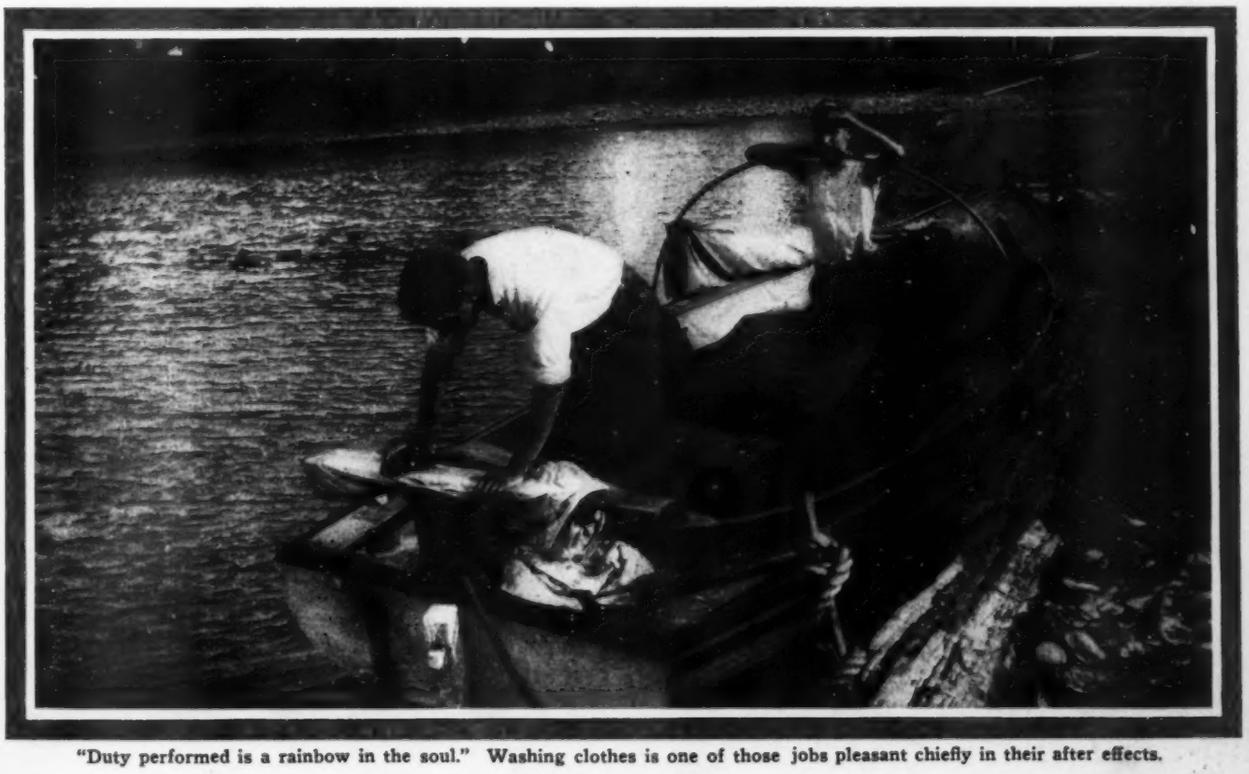
The outlook along one of the canals as seen from Querida's bow.

Do you all know the "Thimbles?" Here is the next really good anchorage west of Saybrook, though Duck Island will do on a pinch, even in the small launch. When is it going to have a fog signal on the end of its breakwater, by the way? At the "Thimbles" you've got it all over the big yacht for he is excluded from this cosy little harbor. There are 365 islands in the group, they say, one for every day in the year. Personally, I think that must include every little rock that is bare at low water, but at any rate there are enough of them and very beautiful they are, too. Follow Uncle Sam's directions carefully in here, however, for there are a number of very rambunctious rocks in the neighborhood, some of which are just bare at low water.

Branford Harbor is a better place for the little boat to lie in than New Haven. The latter can be reached easily from there by trolley, and by running into Branford you avoid the long stretch up New Haven Harbor or the certain roll at Morris Cove if there's ever so little of a southwest wind. Branford is much more exclusive, too, which is what the cabinless cruiser is looking for. Steer due N. E. from Cow and Calf and you'll get in with flying colors. There's something mighty nice, too, about absolutely calm water and air after a long day with the wind's roar in your ears and the waves' jerk under your feet, and about the stillness broken only by the evening land sounds. I've never struck skeets in Branford Harbor, either, while at Morris Cove they compelled us to "fold our tents like the Arabs, and as silently steal away" in pajamas at four A. M. one morning. Twelve hours later that same day found us in the North River. But that is a bit hasty, for there is much to see between New Haven and New York. Darien River is a good place to visit if you don't mind waiting there till the tide condescendingly consents to become high again. The bays and harbors along the north shore of western Long Island, beginning with Huntington, are all elegant for large and small alike, as we all know.

The best way for the little boat to get out upon the stately Hudson, when you leave the Sound behind you, is to wade through the Bronx Kills and run up the Harlem. If bound south and you are accustomed to navigation in Gardiner's Bay, better chug down the East River on a Sunday or early in the morning. Otherwise you may find yourself a bit too popular, and the tugs and ferries don't care what they do. You feel like the wee pedestrian on the auto roadway.

It is surprising how many slick places we small cruising folk can find out which seem to have escaped discovery, or at any rate publicity. I am thinking in particular of a little place called "Popola Cove," on the west bank of the Hudson, as you enter the Highlands from the south. This tiny V-shaped indentation is about as perfect a place for the open



"Duty performed is a rainbow in the soul." Washing clothes is one of those jobs pleasant chiefly in their after effects.

boat cruiser as can be found. The sides are thickly wooded and rise abruptly from the water's edge, except for one or two small, grassy clearings—ideal tent sites. You get a superb view of the river and the highlands when you climb to the top of the hill to get permission to camp, from the farmhouse there. This is an ideal spot to lie over and loaf for a few days. One moonlight run up the Hudson from Yonkers to this place is indelibly tattooed on this skipper's memory. The full moon, as it climbed up in the east and spread its rays full strength upon the Palisades to the west, made a never-to-be-forgotten picture.

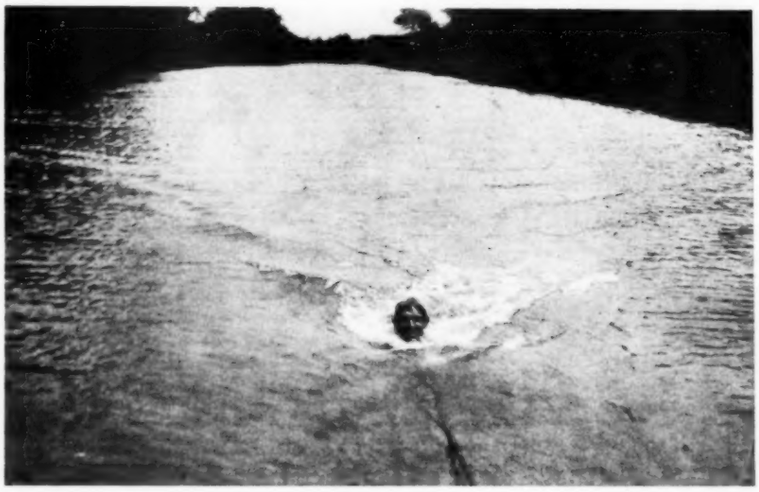
The Hudson is more enjoyable for the little boat than for the moderate-sized one, because the small fellows can run up into such coves as this and avoid the swell of the frequent night boats which those who stay in the river all night must submit to. There are lots of other places especially fitted for the little boat which seem to have stuck in my memory too. One is Mallet's Bay on Lake Champlain. Another is Milford Haven, back of Gwynn's Island, in the lower Chesapeake, from which you make your exit over the bar to the south while the big boat must go a long ways round. One day we yanked and yanked on the sprit of a yawl which was fast on this bar. She came off finally (the yawl, not the sprit), and subsequently towed us into Norfolk with an empty tank in our bow. But I'm getting to yarning and forgetting my title.

Experience is the great teacher they say. So it is. It teaches the cruiser-camper many things. It taught the mate of our Norfolk cruise that the Delaware River contains a tide. (Another yarn after all, but a short one!) One bright moonlight night on this river after the skipper and "navigator" had turned in, the "mate and commissary-general" must needs jump overboard. Shortly after the splash the air is pierced by a "Hey, there, you fellers, cut it! Don't run the boat away from me." "We ain't," grunted the disgruntled capt. "The hook's down, idiot," snorted the sleepy navigator. "Never see a tide before, I suppose," he added, squinting an eye over the coaming and then slinging a ring buoy at the unfortunate mate who was swimming furiously at the anchored launch without getting any nearer. The ring buoy went wide, however, and started for Trenton at aeroplane speed. That altered matters and the hook had to come up, for the buoy, at any rate, had to be rescued. Slimy, wet rope and muddy anchor iron against thin pajama legs are not conducive to amiability of temper, and the night air was sadly shocked. However, the launch finally set out up the river. Despair seized the mate; then an inspiration, and he struck out for the nearby shore. In due course of time the boat returned with the captured ring buoy and the mate's apparel. This he seemed glad to see again when we found him shivering behind some trees which he had tried to interpose between himself and the all-too-near houses. The moon was especially silvery that night as he turned in without a word of thanks to us for bringing back his garb.

But somebody always opens the throttle. Note the formation of the bow and stern waves.

Swimming under other conditions is, of course, a prime attraction on a cruise, and is easier and pleasanter off a small boat. The joy of being able to peel off at any time and jump overboard for a few turns around and under the boat is immense. On our Champlain cruise I managed to get in the water on an average of once a day, though, if I remember correctly, I left my bathing suit at home. Towing behind the launch at a rope's end is capital sport on a hot day if proceeding at moderate speed, but becomes somewhat strenuous when the throttle is wide open, and decidedly annoying when the helmsman sportively runs over into shallow water, that your toes may bump the rocks along the bottom.

The small-boat cruiser learns much else from experience. He learns not to sit on the bananas, not to drop the grease cup in the bilge, not to shave in rough water, even if he is nearing port, and not to take a straw hat along. The pleasure of open-boat cruising is all in knowing how. Here's how you go about it.



Towing at a rope's end is capital sport on a hot day, when at moderate speed.

The necessities are a snap to provide for. Sleeping is easily taken care of if you make a simple preparation before leaving home. This is simply to provide some tongued and grooved boards cut to fit the inside beam of the boat forward. These are placed across the boat, with the ends resting on the locker covers. This provides four to seven feet width—plenty of room for the two or three tired shipmates. Plenty of blankets, and perhaps a quilt or two underneath, make a very comfortable bed, if you use soft wood, and you have your favorite pun ready for the admiring folks back home of how you slept "on board." One solemn warning, however. After making up the bed don't remember that there's something in the lockers you just must have that night. It can only be obtained by going aft warping yourself forward between the boards and the floor, and by knee and back work raising the locker cover, boards, blankets and sleepers en masse—to find, probably, that the desired article is after all on deck. The boards pack away handily in the day time beside the engine box. A couple of these same boards make a good seat to steer from, too, for it's tiring to sit sideways for any length of time and steer. They are also handy as dining and card table.

It's a good plan to bring along a tent and to set it up at least once a week. It gives you a change—something else to sleep on and a chance to houseclean the boat.

Most anyone along the waterfront will lend you land enough to camp on for a night or two, though it's more prudent to ask beforehand. We always tried to pick out an especially attractive site Saturday afternoons, make a good camp, and stay there till Monday. When you're storm-bound by a nor'easter, or by rough water outside, the waterproof tent is a great comfort, and may prevent driving you to the uncertain company usually found in a village hotel.

And so you see that in many respects the small boat cruiser, being unrestrained by depth of water, head room under bridges and many other limitations of the owner of the larger cruiser, may have every bit as good a time, sees more of the country and does it at remarkably small expense.

(To be continued.)

How a Magneto Makes Electricity.

The Principles Involved and Method of Operation Explained and Illustrated. How Sparks are Produced Mechanically for Ignition Purposes.

By P. S. Tice.

Editor's Note.—It is apparent to all who have watched the development of the motor boat and its power equipment that the magneto, as a source of current for the ignition system, is rapidly gaining in popularity. In fact, many manufacturers of engines are now supplying this device as part of their regular equipment. While we are all more or less familiar with the magneto and know that its current is generated by revolving an armature, with its windings of wire, between the poles of a group of magnets, how many of us really know why this is so? Much has been written on magnetos, but the writers have generally taken for granted that every one knows that a current may be induced by revolving a coil of wire in a magnetic field, thereby cutting the lines of magnetic force, and have let it go at that. But Mr. Tice in the following article has gone back a step further, and by explaining the relationship between magnetism and electricity, by illustrating the principles of the mechanical generation of current and their application in the design of the magneto, he has given us the "why" in such a manner that it can be understood readily by the non-technical reader.

The illustrations used in connection with this article show, we believe for the first time photographically, not only the "lines of force" in the fields of the bar and horse-shoe magnets but also how these lines of force in the magnetic field of the magneto are distorted by the armature and cut by its windings.

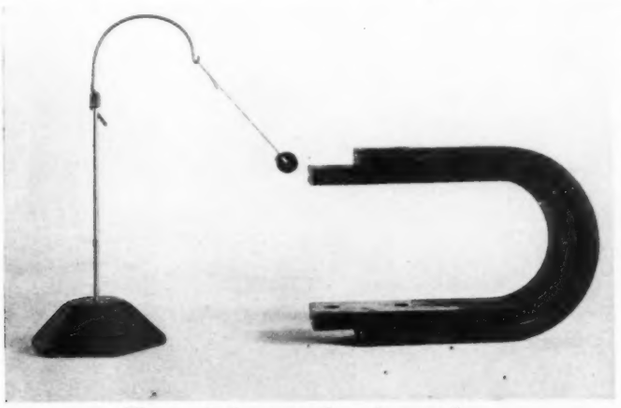


Fig. 1.—A demonstration of magnetism.
A small disc of steel, suspended by a fine thread, maintained in the position shown by the attractive force of one pole of the U magnet.

IT is the writer's purpose to draw attention in the following to the elementals governing each electrical and magnetic action involved, and to show how these occur and are related to and supplement each other in the production of ignition sparks in the modern magneto. The magneto, as we are coming to know it in motor boat practice, is one of the most highly specialized developments of electrical and mechanical engineering effort with which we have to deal; and, while the principles underlying its operation are not late discoveries, the manner of their combination is comparatively new and in some cases highly original. Therefore, in order that a clear understanding of these combinations and their results may be had, each principle employed will first be explained individually and as if it were acting alone, and later the relationship of each to the others and all to the magneto as the motor boatman knows it.

Magnetism and Magnets.

Magnetism is defined as that property possessed by bodies of certain substances whereby, under given circumstances, they exert an attracting or repelling force upon certain other bodies, without physical contact having been made between them, as in Fig. 1. A *magnet* is a body which possesses magnetism.

Though all substances show some magnetic quality, there are three which form a group distinguished from all others in this respect, and while only a feeble manifestation of magnetism may be caused in other metals and non-metals, iron, nickel and cobalt take magnetism very readily and in relatively enormous quantities.

Aside from the fact that a magnet possesses magnetism, one of its chief characteristics is *polarity*, or the possession of magnetic poles. That is, when any magnet, of whatever form, is freely suspended by a fine cord or fibre it can normally assume but one position with reference to the earth. The latter is itself a large magnet, the magnetic axis (an imaginary straight line joining the magnetic poles) of which very approximately coincides with its axis of rotation. The *magnetic poles*, positive and negative, of any magnet are at the ends of the magnetic axis, hence the magnetic poles, or poles, for short, are, in the earth, located in the North and South Polar regions, respectively.

It is also a property of magnets that poles of like sign, two positives or two negatives, repel, while those of unlike signs, one positive and one negative, attract each other. Therefore, when a magnet is freely suspended, it normally takes up a position in which its positive pole is presented to the negative pole of the earth, and vice versa. In the case of the suspended magnet, that pole which points North is called the North or positive pole, and the other, the South or negative pole. It is this magnetic principle, as is well known, which is used in the making of compasses.

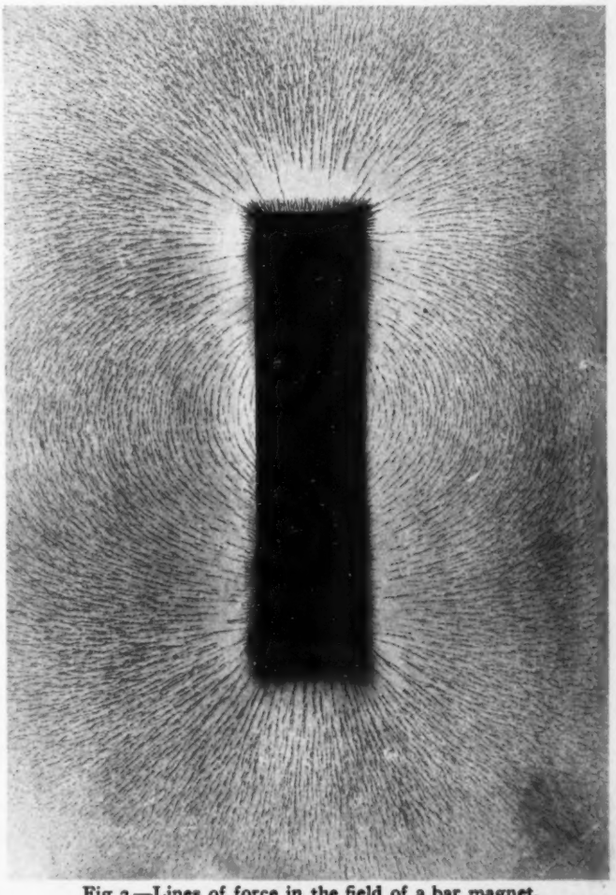


Fig 2.—Lines of force in the field of a bar magnet.
The looping of the lines of force to form closed circuits through surrounding space and the body of the magnet itself is to be particularly noted. In "posing" for this and the other field pictures the bar magnet rested upon a dull, white card placed upon the floor, and the camera was arranged to point directly down upon them. A piece of thin glass resting upon the magnet supported the iron filings which were sprinkled on and which give the map of the lines of force.

Fig. 3.—A demonstration of the theory of magnetism (a).
The arrangement of the molecular magnets when in a magnetically saturated state. The small pieces shown are permanent magnets, and each may be taken, for purposes of illustration, to represent a magnetic molecule; and the entire collection of small pieces as the body which is being magnetized. The large U magnet here furnishes the magnetizing field.

Since magnets exert a force upon each other and upon other substances which normally have no magnetism, without physical contact, as per the above definition of magnetism, it is obvious that magnetic influence extends across space in the neighborhood of a magnet. The space or region surrounding a magnet and in which magnetic influences exist is called a *magnetic field*. Upon investigation, this field is found to be traversed by so-called *lines of force*, each line being distinguished throughout its length from all other lines, the number of lines depending upon the magnetic strength of the magnet. The paths of the lines of force are curved, each extending from the positive (+) or N pole, through space to the negative (—) or S pole. This can be demonstrated in either of two ways: by bringing a small, freely pivoted magnetic needle into proximity with one of the poles of a relatively large magnet, and moving it away from that pole in the direction momentarily indicated by the direction of its length; or by the iron filings experiment, which gives a map of the lines of force existing in the plane in which the experiment is made, as in Fig. 2. In the figure a great number of particles take the place of the pivoted magnetic needle and assume positions in which their magnetic axes coincide as nearly as may be with the paths of the lines of force.

Fig. 2 also serves to illustrate another property of magnets, *i. e.*, the ability to cause bodies, hitherto not magnetized, to assume a condition and act in a manner identical with that of the energizing magnet itself. That is, upon bringing a piece of non-magnetized magnetic material within the field of a magnet, that substance at once assumes all the characteristics of the magnet itself, and retains them so long as it remains within the field.

This is called *magnetic induction*, from the fact that the characteristics of magnets, *magnetism* and *polarity*, are induced by the proximity of a magnet with its field in a body which does not normally possess them. Fig. 3 shows, upon a larger scale, what is shown in a general way in Fig. 2. As shown in Fig. 3, induced magnetism in one body is capable of inducing magnetism in another body, and that one in still another, and so on.

Any substance in which magnetism can be induced, and which is therefore attracted by a magnet, is termed a *magnetic substance;* and all substances which are not quite strongly

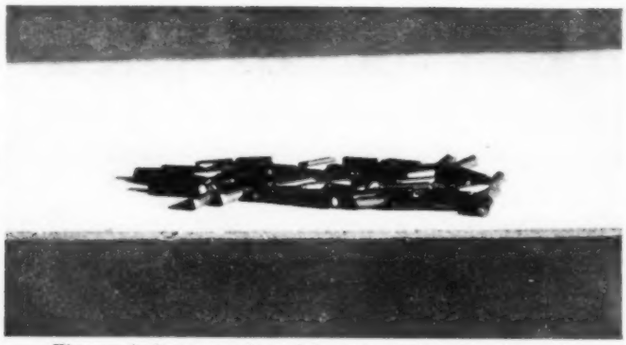


Fig. 4.—A demonstration of the theory of magnetism (b).
The same pieces as in figure 3 after the removal of the magnetizing force; showing the tendency toward demagnetization in a body upon the removal of the magnetizing influence. The pieces repel each other and arrange themselves with magnetic axes in promiscuous directions.

magnetic, compared with those that are most strongly magnetic, are termed *non-magnetic*. Whenever magnetic material is needed, iron or its alloys, such as wrought iron and steel, is exclusively employed because of its great magnetic qualities.

THEORY OF MAGNETISM.

Just here the theory of magnetism should be taken up briefly, since without knowing its fundamentals it will be difficult to understand the reasons for the existence of permanent and temporary magnets or for the fact that any given magnetic body can be but just so strongly magnetized, *i. e.*, to a given limit, upon the attainment of which state the body is said to be *magnetically saturated*.

The accepted hypothesis states that each infinitesimally small portion, the molecule for instance, of all substances is in itself a tiny magnet of a greater or lesser strength, depending upon the substance, as above. It further states that due to the random directions of the magnetic axes of these tiny magnets, as found in the body, no resultant polarity is normally displayed by the aggregation of all the particles; and that the process of magnetization of the body consists in a turning of these magnet-particles, under the influence of a magnetic field, so that like poles of the magnet-particles point in the same direction. The chiefest point inferred by this is that no change takes place in the pole strength values of the particles,

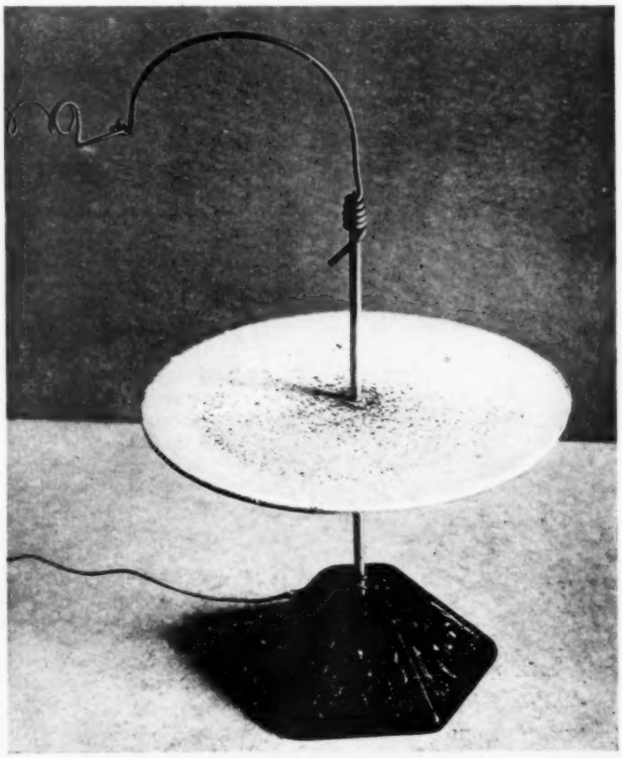
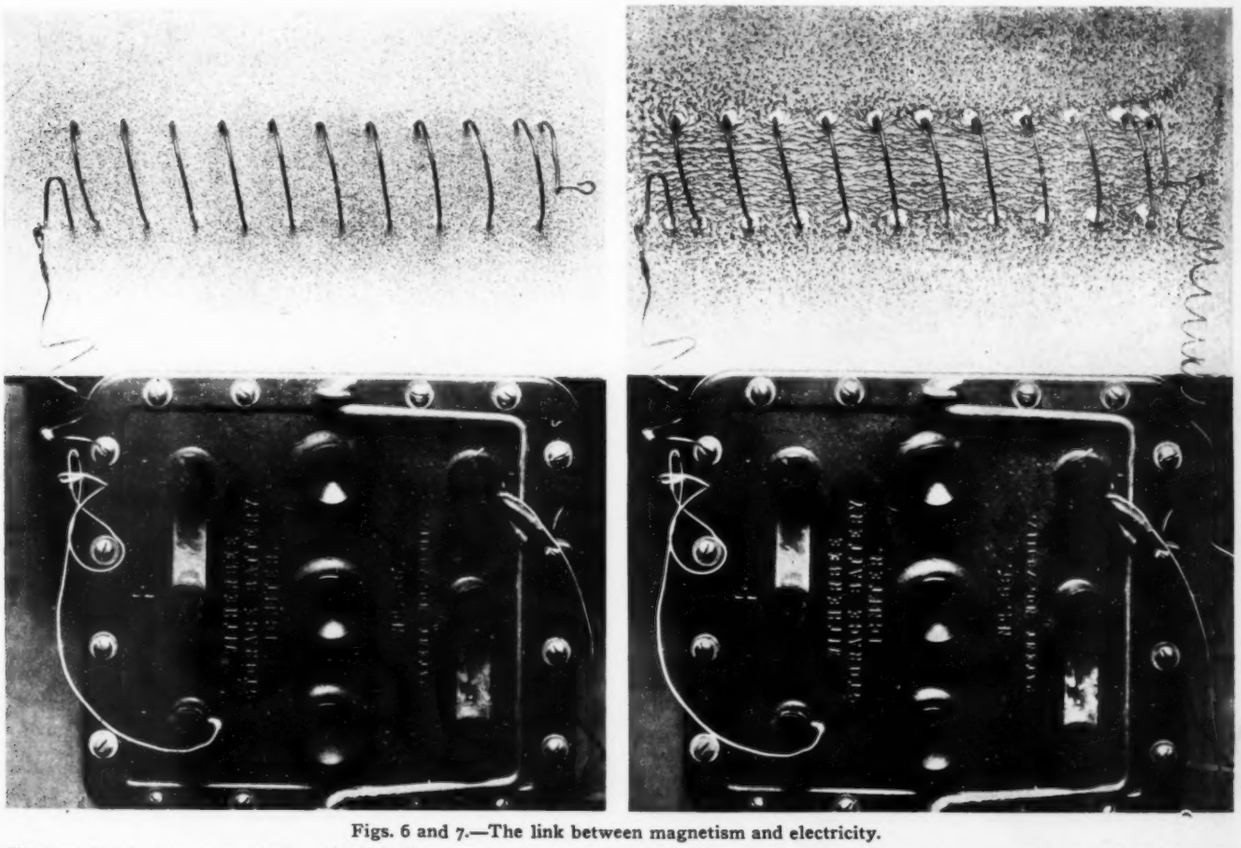


Fig. 5.—Circular lines of force about an electric current.
Fine iron filings sprinkled upon a card through which a current is carried by the vertical conductor shown, arrange themselves in concentric circles coinciding with the circular, closed lines of force.

but that magnetization consists simply of an orderly and uniform rearrangement of the polar directions, so that the body has a definite, resultant magnetism, depending for its intensity or strength upon the relative number of magnet particles which the magnetizing force or field has succeeded in turning. From this it appears that when the magnetizing force is sufficiently strong and is applied for a long enough time to turn all the magnet-particles in a common direction, the magnetism of the body will have reached a maximum value, beyond which it cannot go with further increase in the strength of the magnetizing field. In practice, such a state of maximum magnetization is readily attainable.

This theory is equally clear in regard to permanent and temporary magnetizations. It is a recognized fact, as applied to all substances in the universe, that the softer, more ductile repel and unlike poles attract each other, it appears that within a magnetized body itself, considering that body as made up of magnet molecules, there exist strong demagnetizing forces, since a molecule with its magnetic axis parallel to that of another, adjacent molecule, tends by induction to reverse the polarity of that molecule, or to turn it about bodily so that the unlike poles come in juxtaposition. If the turning is fully accomplished, the body or bar, as a whole, loses its magnetism and returns to the state in which it was before the application of the magnetic field, as in Fig. 4. Steel being harder than iron, does not permit of such a ready reshifting of the molecule-magnets, and, therefore, retains a part of the magnetism induced in it. The retained magnetism is called *residual magnetism*.

It is a fact that, aside from the influence of the chemical



Figs. 6 and 7.—The link between magnetism and electricity.

Fig. 6—to the left—shows a copper wire, which in itself is non-magnetic, woven through a white card to form a helix, only the upper portion of which is, of course, visible. The card is sprinkled with iron filings. As the right-hand end of the wire is not connected with the battery (partly shown at the bottom of the photograph) no current is passing through it and the iron filings are not affected. In Fig. 7—to the right—an electric current is passing through the helix, its right-hand end being connected with the battery through a group of lamps (not shown) which are used to cut down the flow of current to a safe limit. It will be seen that the lines of force about the helical coil of wire through the card, when the current is flowing, cause the iron filings to arrange themselves in lines within the magnetic field produced by the combination of the circular lines of force about each turn of the wire.

or more mobile the substance, the greater freedom is allowed the molecules of that substance, and the more readily may their relative positions be changed. This truth is most readily grasped by comparing two extreme cases, say that of steel with that of a gas, as air. In the steel, the substance particles, called molecules in the following, are very close together, in contact with other molecules on all sides, and therefore confined; whereas, with air, the spaces between the molecules are enormously greater, and the molecules are therefore much freer to assume new relationships, one with the other. Now compare iron in the soft state, annealed wrought iron, for instance, with hardened steel.

Suppose a magnetic field of a given strength were to act upon bars of equal size of the above iron and steel, respectively. The induced magnetism in the iron will be many times greater than that in the steel because of the lesser resistance offered in the iron to the turning of the molecule-magnets. However, when the field is removed, it will be found that the steel possesses the greater magnetism, and for the same reason that its magnetism was the lesser while under the influence of the magnetic field. Fig. 3 will assist in the explanation of this. A series of molecule-magnets is here shown in a magnetically saturated state. From the above mentioned characteristics of magnets, namely: that like poles

constituents in the steel upon the initial polar strength of the molecule-magnets, the retained or residual magnetism is almost directly proportional to the *molecule coercion* or "hardness" of the steel magnetized. The above statement gives the reasons for the almost instantaneous loss of magnetism in soft iron when the magnetizing field is withdrawn and applies equally to the cause of the gradual loss of magnetism with age in hardened steel magnets, such as are used in magnetos, which because of their relatively ready retention of magnetism are termed *permanent magnets*.

ELECTRO-MAGNETISM.

In investigations of electric currents, it has been found that the flow of electricity through a conductor, as a wire, creates a magnetic field exactly similar in all respects to that caused by a magnet. That is, a magnetic field due to an electric current has power to attract and repel magnets and all magnetic substances, cause magnetic induction, etc., just as is done by a magnet, as discussed in the above. However, the magnetic field due to an electric current is differently disposed with reference to the conductor than is the field created by a magnet, referred to itself. This is shown in Fig. 5.

If now a helical coil of wire, called a *solenoid*, be formed as in Fig. 6, and a current be passed through it, Fig. 7, the

density of the magnetic field due to the current is greatly increased and a bundle of parallel lines of force is created. These lines of force are disposed with reference to the solenoid in exactly the same directions as are the lines of force in a field due to a magnet; and the solenoid behaves exactly as would a bar magnet, displaying magnetism, polarity, etc., so long as the current is flowing. A sectional iron filing map of the field of a solenoid, as in Fig. 6, is shown in Fig. 7. It is particularly to be noted in Fig. 7 that the circular lines of force, as in Fig. 5, are present about each portion of the wire for a short radial distance. Fig. 7 shows the paths of return of the lines of force through the body of the magnet to complete the magnetic circuit, as mentioned.

ELECTRO-MAGNETIC INDUCTION.

Experimenters of past generations discovered that, while a current of electricity flowing through a conductor will create a magnetic field about the conductor, Fig. 7, the converse is also true, in that an electric current can be *induced* in a conductor located within a magnetic field. That is, an electric pressure will be induced, providing that the electric or metallic circuit of the conductor is closed and that it is moved within the magnetic field in such a manner that the number of lines of force about it is caused to vary.

In verbal illustration of this, a simple experiment will be described: If a length of copper wire, say 30 or more feet, be stretched, not too tightly, from wall to wall, east to west, of a large room, and its circuit be closed through a delicate *galvanometer* or electric current indicating instrument, it will be found that, upon causing the wire to vibrate in a vertical direction, the galvanometer will indicate the passage of an electric current with each vibration. The explanation is that in vibrating vertically; that is, toward and away from the magnetic axis of the earth, the wire momentarily passes from a region of a given magnetic intensity to one of greater intensity, and vice versa, within the magnetic field of the earth, which is in all respects similar to the field of the bar magnet in Fig. 2. When the wire vibrates horizontally, it does not pass through regions of varying magnetic intensity, and, therefore, no electric pressure or current is induced in its circuit. Of course, the difference in intensity in the earth's field within the amplitude of the wire's vibrations is very slight, but it is sufficient to cause the induction of a current which is measurable with a delicate indicating instrument.

This latter experiment, while extremely simple in itself, shows exactly upon what electro-magnetic induction is dependent; if the wire is vibrated more sharply, the galvanometer

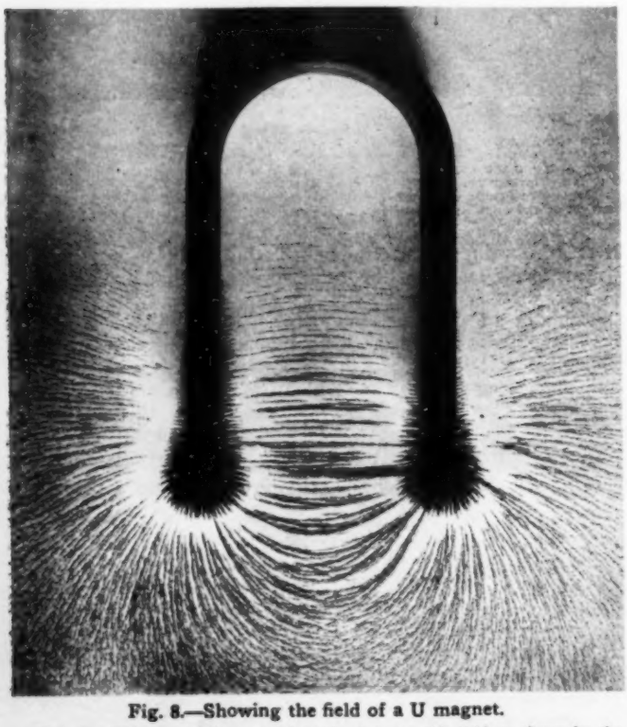


Fig. 8.—Showing the field of a U magnet.

Note the difference in shape and intensity between this field as shown by the iron filings and that of the bar magnet in Fig. 2. A U magnet such as those used in a magneto is merely a bar magnet so bent as to bring the poles into close proximity and thus reduce the extent of the field and greatly increase its intensity.

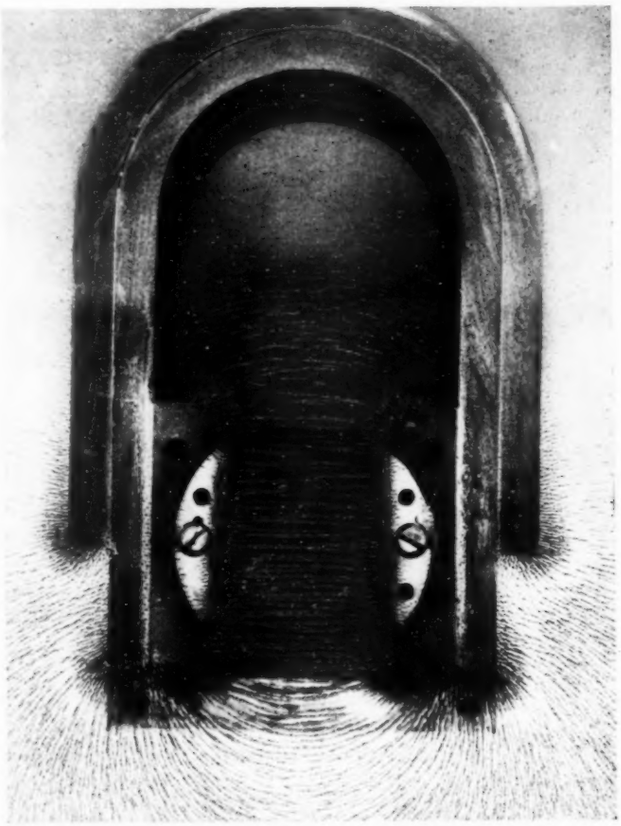


Fig. 9.—How a current is induced in the armature winding (a).

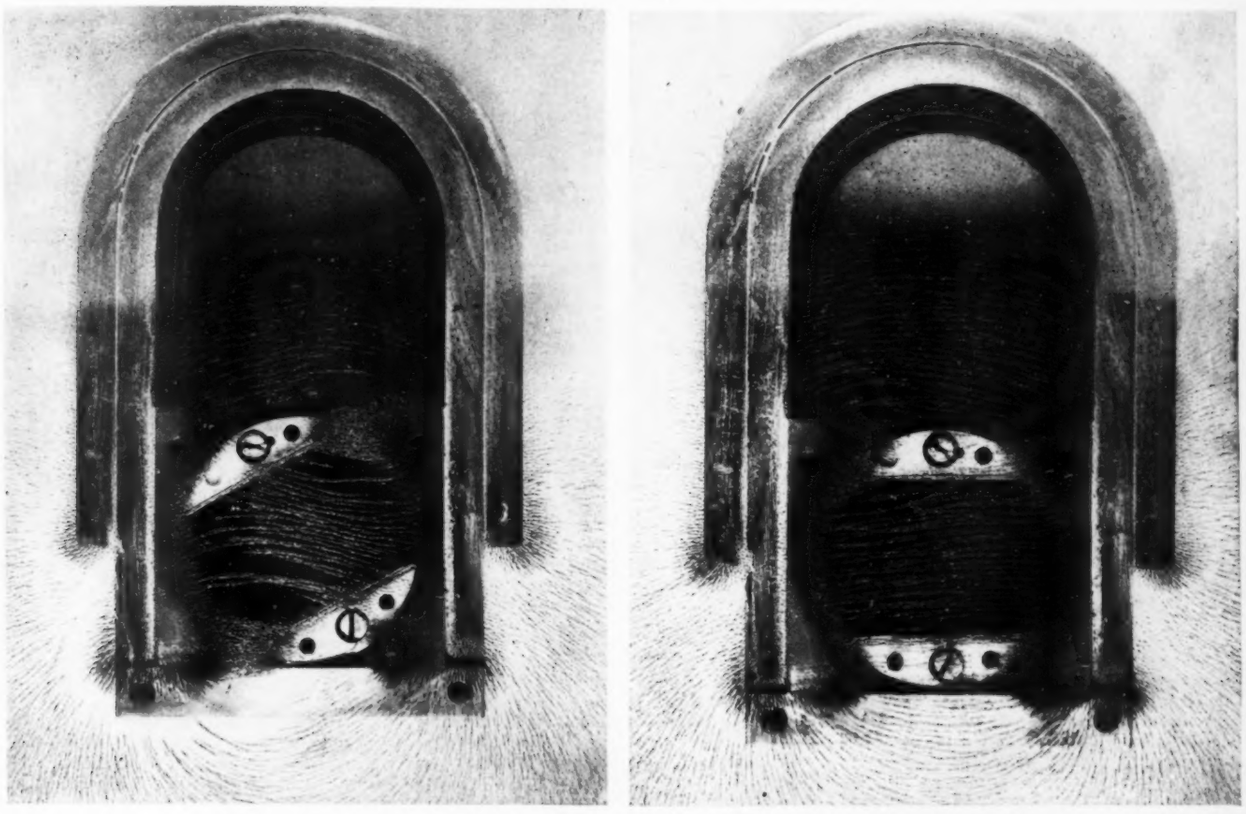
In this photograph the armature or revolving member of the magneto is shown in the position in which the greatest possible number of lines of force pass through its core and thus through the center of the windings of wire in the same manner as the lines of force were shown to pass through the center of the wire helix in Fig. 7 with the difference that the lines of force in this case are produced by permanent magnets instead of by an electric current as in the other case.

indicates the passage of a greater current; if its length is increased, without its speed of vibration being altered, a similar result is noted; and if both its length and speed of vibration are increased, the value of the electric pressure induced is found to be doubly increased. These facts point to but one conclusion; namely, that *the induced current depends for its value upon the number of lines of force cut by the conductor in a given length of time.* It is to be noted that the induction of current in the conductor circuit takes place just the same and is of the same value whether the conductor cuts the lines of force or the lines of force are made to cut the conductor, all that is necessary being the proper relative displacement of one with reference to the other.

The truth of the last statement is readily conceivable. In the case of two closed conductor circuits in juxtaposition, as in the common induction coil, a current flowing through one of them creates a magnetic field about itself, as in Fig. 7, and also about the conductor of the second circuit. If now the circuit carrying the current is broken, the magnetic field due to the current flow is removed and its vanishing lines of force cut the conductor of the second circuit and thereby induce an electric pressure within it. The vanishing lines of force also cut the conductor through which the current producing them was flowing before the break in the circuit, and also induce an electric pressure within it. The action in the first instance is termed *mutual induction*, and in the second instance is termed *self-induction*. Mutual and self-induction, as employed and found in practice will be taken up a little later.

APPLICATION OF PRINCIPLES.

Since the value of the electrical pressure or current induced electro-magnetically is dependent upon the number of lines of force cut through by or cutting the conductor of a circuit in unit time, it is obvious that there are several ways in which the number of lines cut can be increased to a maximum for a given case: (1) by making the magnetic field in which the conductor is moved as intense as possible; (2) by making that portion of the conductor within the magnetic field of the greatest permissible length, and (3) by moving that part of the conductor which is within the magnetic field, or shifting the



Figs. 10 and 11.—How an electric current is induced in the armature winding. (b) and (c).

In Fig. 10—to the left—the armature is shown midway between its extreme positions (shown in Figs. 9 and 11) assumed in the process of current generation. The photograph shows how the lines of force are distorted from their naturally direct paths from one pole of the magneto to the other to pass through the armature core and thus through the center of the windings of wire. The lines are actually distorted to a greater degree than can be shown photographically. The number of lines passing through the winding is not, therefore, reduced from the maximum, as shown in Fig. 9, to any appreciable extent when the armature is in the position here shown. In Fig. 11—to the right—the armature is shown in the position where no lines of force are passing axially through the windings. It is at the instants at which the lines of force enter and leave the core that the current is induced in the winding and passes through the external ignition circuit to produce the spark.

lines of force of the field with reference to the conductor, as rapidly as possible.

In magneto practice, each of the three methods above is limited in its individual extensions, although it is usually endeavored to extend (1) and (2) to the farthest limit consistent with compactness of the complete magneto, (3) is apparently the most limited of these methods, but its limitations are overcome to such an extent in practice that it is in reality the most flexible and readily extendable of the trio, as will be explained.

The method designated as (1) provides a large field for endeavor. A great step is made toward intensifying the magnetic field by bending the bar magnet, Fig. 2, into the U form shown in Fig. 8. Here it will be noted that the lines of force through that part of the field lying between the poles is so intense, compared with the field of the bar, that the induced magnetism in the iron particles is sufficient to cause those lying in adjacent lines to pull together and leave apparently blank spaces in the map. By increasing the number of U magnets employed in creating a single field, the intensity or number of lines of force in the field is further increased. Experiment has proven that a high-grade alloy steel with a considerable percentage of tungsten will most readily retain magnetism, after it has once been hardened and magnetically saturated, see Fig. 3, by inserting it within the magnetic field of a solenoid, as in Fig. 7, of a great many turns of wire, and through which a heavy current of electricity is passed. This tungsten steel is used almost exclusively for magneto field magnets.

The readiness with which magnetic lines of force traverse any substance is measured by the unit of *permeability*, which refers to the number of lines of force passing through a given sectional area of a substance. When it is considered that all the lines shown in Fig 2, or Fig. 8, and millions that are not thus shown as passing through surrounding space, all traverse the body of the magnet in completing their circuit, it appears that the permeability or magnetic capacity of steel is many thousands of times greater than that of air. Likewise, as in the above, the permeability of soft iron is greater than that of steel. For these reasons, the intensity or number of lines of force in the field in which the conductor is moved is highly increased by so filling the field space with soft iron that only sufficient room is left for the conductor.

By using the above high-grade magnet steel for the field magnets, and attaching pieces to their poles, as shown in Fig. 9, and at the same time placing between the pole pieces a body of soft iron, called the *armature*, the field between the magnet poles is made of the greatest possible intensity. It is to be noted in Fig. 9 that although the field between the poles of the magnet is greatly intensified by thus almost completely filling it with magnetic material, there is a very considerable leakage or loss in the effective magnetic field.

For method (2), it is usual to form the conductor of the circuit into a helical winding which places the greatest possible length within the smallest possible space. Also, in order that the moving portion of the conductor may be located in the most intense part of the magnetic field, it is wound in the form of superimposed helises upon the soft iron armature.

In Figs. 9, 10 and 11, of a magneto kindly loaned by C. F. Splitdorf, the armature is shown in three characteristic positions. Fig. 9 shows the armature in such a position that its main body of metal lies directly across the magnet poles, and therefore conveys the greatest possible number of lines of force through the coils of the movable conductor. In Fig. 10, the armature has been displaced through 45 deg., and shows in what manner the lines of force, which extend from one magnet pole to the other, are distorted and tend to follow the direction of the main body of metal.

Almost all the lines which traverse the armature in Fig. 9 still do so in Fig. 10, and therefore there has been no very appreciable electric pressure induced in the conductor winding, since a current depends for its induction upon a cutting of the lines of force. Between the positions shown in Figs. 10 and 11, however, all of the lines which are shown as traversing the armature and its winding in Fig. 10 have been caused to assume new courses and leave the armature winding without lines of force running axially through it. At this point, Fig. 11, the cutting of the lines of force by the coil has been extremely rapid, as is readily seen, and an electric pressure has been induced in the conductor winding.

(*To be continued.*)

The Gold Cup.

From the A. P. B. A.

Looking Back at the Season of 1910, the Seventh in the Association's Career and the Possibilities for the Future.

By H. T. Koerner, President.

The Bermuda Cup.

ALMOST gratifying year has been passed by the American Power Boat Association and a review of its activities during the season just closed, marks an epoch in its history. With steady strides the Association has developed from a modest beginning seven years ago, to a powerful Association of clubs numbering 106 and comprising in its individuals as represented by its constituent clubs over 25,000 active motor boatmen distributed in nearly every section of the United States.

It requires no great stretch of the imagination to realize what this growing factor in the life of motor boating means to the individual, to whom the Corinthian spirit of the sport appeals, and in whom the activities of the finest of all out-door pleasures stirs the spirit of enthusiasm. To him and for him, the Association appeals, directs and acts. It knows no preferences, recognizes no influences and abides only by the clean cut principles of the amateur in the sport.

That the American Power Boat Association has developed to such enormous power and usefulness is a cause for congratulation and a vindication for its founders who have built upon a foundation capable of carrying the ever-increasing weight of responsibility and power. To the Secretary, Morris M. Whitaker, much of its growth is due, as a result of his untiring and intelligent work during his incumbency. Its officers have outlined plans for development, which will increase the highly satisfactory work accomplished and their successors will continue without doubt along the lines laid out for the coming year.

The Thousand Island Section is in flourishing condition. The Buffalo Section is fully organized and is making ambitious plans for the coming year. With the Boston Section, the Philadelphia Section and the New York Section in course of development, the Council of the American Power Boating Association will be not only materially assisted in its deliberations, but will gather to itself a most useful and valuable factor from each of the localities indicated.

The rules of the Association have met with unqualified and uniform success. This is particularly noticeable in localities where special and improved methods have been tried and found wanting. It is no small matter to originate a general rule for divergent hulls of boats, bringing them to a common basis for racing for the enjoyment of numberless thousands of enthusiasts, particularly when the fact is noted that these rules are the result of an endeavor to render all and any boats available for contest on a basis, which from the very nature of the variety and kinds, made it seemingly hopeless. This, nevertheless, has been accomplished by Henry J. Gielow, measurer of the American Power Boat Association, and the successful and brilliant result is no less in evidence with the vastly improved and refined hulls of today, than when his scientific deductions were first given to the motor boat world.

The great and growing demand for scratch racing for boats of similar construction and developed horsepower has been given careful and constant attention. The association is about to advocate a standard rule for these classes, which from the nature of the work involved and the general demand for closer racing conditions in which men of moderate means may enter without financial sacrifice, it is hoped, will produce an equally scientific and useful result.

The very high speed racing boats of 40 feet overall length will always be a class unto themselves and will remain in a special niche, where developed horsepower is only limited by the factor of safety and the purse strings of the men who enter into this special and speedy class of racing.

Across the page in the history of the American Power Boat Association for the year 1910, nothing short of marked and continued success can have been recorded. The loyal and continuous labors of its officers have met with the satisfying results, that, however high and ambitious in their conceptions, have been attained, and, it is believed, with permanent value to the sport at large. This has been accomplished with untiring labor, without a hope of compensation other than the desire for meriting the approval of the men who stand for clean sport in motor boating throughout the whole country, and to stand firmly against the insidious meddling of men whose enthusiasm is largely measured by present or future returns or compensation for services rendered the association.

International Motor Boat Racing.

The British International Race and What Victory in this Event Means to America. What We Shall Have to do in Order to Retain the Trophy.

By Henry R. Sutphen.

American Member of International Committee.

WHAT will America do to defend the Harmsworth Trophy, the greatest motor boat prize in the world? Many motor boat owners on both sides of the Atlantic are asking this question. Those who witnessed the great race at Larchmont last August were much disappointed with the showing made by our 1910 defenders, and a repetition of this must not occur if America is to lead the world in fast motor boats.

While, on the surface, there appeared to be a lack of interest among motor boat owners, in defending the Trophy, in reality this was not the case, as there were built specially for this race four defenders, which the builders and owners fully anticipated would equal and surpass the best boat built heretofore. A country defending the Trophy is always handicapped in the time to prepare for the race, as a challenge can be entered within six months of the date of the race and the holding club is often caught napping. This was largely the case in 1910, the British challenge being received by the Motor Boat Club of America in the latter part of December, allowing us very short time to build defenders.

In the early part of 1910 the building of defenders was actively taken up by prominent members of the Motor Boat Club of America, who found the market for racing engines suitable for the service very limited. The builders who had experience in similar events before declined to build in the short time available. There were, however, some who offered most interesting boats, and four were built and placed in operation before the time set for the race, but not soon enough to tune up the motors and the light hulls, and obtain the maximum sustained speed that they had been designed for. Members of the Motor Boat Club of America, however, deserve great credit for the sportsmanlike effort they made in building new boats, which represent an outlay of over fifty thousand dollars. The lesson was an expensive one, but if it has taught us to be prepared for the future, the money was well spent. Experience has always proved the best teacher, and in looking back we must not forget the pitfalls of the past and the successful demonstration of our opponents.

The British International or Harmsworth Trophy.

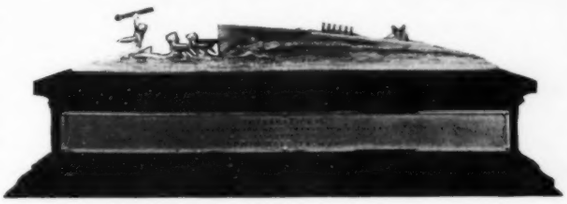
The three boats representing England last year were most interesting, representing as they did utterly different types, two of which, in hull design, were new to most of us. We had seen little success with the hydroplane in this country, and the general impression was that these boats were of very frail hull construction, short in length and limited power. In the latter respect, Zigorella was the type of hydroplane that we had expected. Our surprise was great to find in Pioneer a seagoing high-speed motor boat with unusual beam, high freeboard and extremely fast lines. Her underbody was of new design and illustrated the great advance in the development of the hydroplane and the highest degree in boat building construction.

On the first lap of the race, before "Pioneer" broke down, she was estimated to be developing a speed of forty-two statute miles per hour, while later in the race, when she completed her rounds, without her full power, she averaged over thirty-eight miles an hour. Her breakdown was most unexpected and was probably due to her being unprepared for the great strain put upon her in developing the maximum speed. We understand that this boat, like our own defenders, was

late in being completed and but few trial trips were obtained before she was shipped to America.

The best speed shown by Dixie II, the old reliable, was a little over thirty-four miles per hour, and this illustrates better than anything else could the big difference there was in the speeds of the two fastest boats. Reliability, however, is as much the key of success as extreme speed, which will prove of little avail if it cannot be maintained. Our 1911 defenders must have all the reliable features of Dixie, which boat undoubtedly stands out with a record that has never been surpassed, and probably never will be again. They must also have the speed of a new Pioneer, which will be faster than anything we have yet seen or heard of. The time is none too long to accomplish the task ahead of us, but I feel confident that America can and will do it.

After the race at Larchmont, the International Committee held a meeting upon Commodore Melville's flagship, Vergana, and discussed the conditions and rules of this motor boat race. Suggestions were made of modifying the rules and conditions in certain details which it was considered would make the race more interesting to all contestants. Communications between the Motor Boat Club of America and the Royal Motor Yacht Club of Great Britain, the Trustee of the Trophy, have taken place during the past few months, and Commodore Melville of the Motor Boat Club of America is now in England conferring with the Royal Motor Yacht Club regarding the new conditions.



The E. R. Thomas Trophy.

The slight modifications that will probably be adopted will not affect the main object and conditions of this race, which is only restricted to boats under an overall length of 40 feet, with unlimited power. Each country has the privilege of entering three boats to contest in this event, and it is fully expected that a large representation will be made by more than one foreign country in this classic event in 1911.

The Motor Boat Club of America recognizes that the Harmsworth Trophy typifies the highest attainment in designing and building internal combustion engines and speed hulls, and that there is no trophy to-day, national or international, to equal in importance and interest the Harmsworth Trophy.

Many unjust criticisms have been made of the Motor Boat Club of America in the public press, due largely to ignorance on the part of the writers regarding the true facts of the case. Interest certainly lagged in international motor boat racing in 1909, when no race took place for the Harmsworth Trophy, and this had a great deal to do with the apathy shown in building defenders for the 1910 race.

Racing in the Mississippi Valley.

The Phenomenal Interest Shown in Motor Boat Speed Contests in the Middle West. What the M. V. P. B. A. Has Accomplished in Its Section of the Country.

By Chas. P. Hanley.

TO take up the question of motor boat racing in the Mississippi Valley, and especially among those clubs affiliated with the central organization, the Mississippi Valley Power Boat Association, and attempt to do the subject justice in an article of this kind is almost an impossibility. We of the Mississippi Valley love the motor boat and the race, for, with the great Father of Waters flowing through our midst and with the many smaller rivers and lakes in close proximity, it would, indeed, be strange if we were not a boat-loving people.

Imagine if you can, hundreds of people from a half dozen or more states planning and arranging their vacations a year or more in advance so as to be able to attend the regattas of the Mississippi Valley Power Boat Association, held under its auspices on the fourth of July each year, and imagine these same hundreds of enthusiasts making their annual pilgrimage in crafts of all sorts and sizes to the town fortunate enough to have been chosen the mecca of their travels and the scene of the races, and still further let your mind's eye see thousands upon thousands of men, women, and children, all in holiday array, standing on the banks of the river where the races are to be run, and with this picture in your mind you will have a faint idea of what the regattas of the Mississippi Valley Power Boat Association are and a sort of veiled conception of the enthusiasm of the motor boat men of this section.

Havana—Atlantic City Cup.

The Mississippi Valley Power Boat Association is the great central organization of all the motor boat clubs along the Mississippi River and its valley. Each year the association holds its annual regatta at a town chosen the year previous, and, while the regattas are fostered and controlled by the central organization, yet the club in the town at which the regatta is to be held has complete charge of and makes all arrangements for them.

The Mississippi Valley Power Boat Association has held three big regattas since its organization early in the winter of 1907, the first being held under the auspices of the Muscatine Launch Club at Muscatine, Iowa, the club which conceived the idea of a central organization. The Muscatine regatta proved a big success, the largest gathering of motor boats and motor boat men ever held in the west up to that time. The races were exciting, the classes filled brimful of fast boats, and the best of sport prevailed. At this regatta such boats as Minnie C, Lamb IV, and Teaser were matched together for the first time, and the excitement over this race was at a high pitch. Minnie C, however, proved her speed and won the Valley Championship for the year.

In holding the first regatta the Muscatine Launch Club appointed Mr. A. C. Adams, of Muscatine, and the writer as a committee to draft rules for the proper classification of the various type of boats. It was this committee that conceived the idea of classing the various boats as to length only, putting no restrictions on them as to beam or horse power, and also made the suggestion as to the manner now used by the association in starting the boats at its regattas; that is, having all the boats in the race score up together to the starting line as in a horse race, and the first boat crossing the finishing line being the winner. This method of classing and starting the boats proved a big success, not only with the racing men themselves, but with the spectators as well, and this method of classification and starting has had more to do with the success and rapid growth of interest in our races than anything else.

A few months later at a convention in St. Louis of the Mississippi Valley Power Boat Association this same classification and method of starting was adopted by the association, and during the past year the same has been adopted and made the standard of classification and starting by most of the prominent organizations of the country. The classes, as adopted by the Mississippi Valley Power Boat Association, are as follows: Twenty feet and under, 26 feet and under, 32 feet and under, and the free for all allowing all boats to enter up to 40 feet. We also have the half and full cabin cruiser races. All measurements as to length are made on water line only.

The Burlington Launch Club of Burlington, Iowa, was sponsor for the second regatta of the association the next year, and, in spite of three days of as rainy weather as one ever ran a race boat in, the meet was a big success, both from the point of interest shown by the spectators and the high class of boats present and entered in the races. Among the prominent big boats at this second regatta was Lamb IV, with her big twelve-cylinder power plant; Red Top II, Planet, Sabula, Jimmie June, and Teaser. Lamb IV won the valley championship with an accredited speed of 28 miles per hour. This second regatta proved the means of bringing out some very fast little fellows in the 20-foot class. M. V., of St. Louis, winning in this class and establishing a new record for 20-footers at that time.

The third regatta was held at Peoria, Ill., this past summer, under the auspices of the Ivy Club, and covered three days of racing, July 4, 5, and 6. It is impossible to do this regatta justice on paper; it was a big success, without doubt the biggest race meet of motor boats ever held in this country. Hundreds of boats were in attendance and thousands of spectators and racing men were on hand. The racing was of the highest order, and records went to the wall in every event. Of the big ones, Red Top proved the champion of the meet, winning the grand free-for-all $1,000 cash purse and the Webb Trophy cup, emblematic of the championship of the Mississippi Valley for 1910. To win, however, Red Top II was forced to beat out such fast ones as the new Hoosier Boy, Oshkosh, Vim, Missouri, and Beat It. In this, as in the second regatta, the

The Havana Race Trophy.

The National Trophy.

little fellows proved the center of interest. The class had a big entry list of some twelve different boats, But immediately after the race was started it soon became evident that the contest lay between Comet, M. V. II, and Scamp III, these three boats racing nip and tuck all around the course with the final result that Comet won, and in doing so she was forced to establish a new world's record for a 20-footer. The sensation of the regatta, however, was the remarkable speed made by Cero II, owned and driven by Mr. Robert Deming, of Cleveland, Ohio, in the mile speed trails. Cero II is a steamer, 31 feet 5 inches in length, and when at top speed is almost entirely out of the water. Mr. Deming drove his boat over a mile course at an average speed of 32.9 statute miles, the course being measured by United States engineers, and the time being taken by the official timers of the regatta, one of which the writer happened to be. This, without doubt, is a record for this size boat, and gives you an idea of the kind and quality of boats that are attracted to our regattas. Some of the other notable boats present and taking part in the regatta were Mascot, Pronto II, Joker, Elbridge, Jurgy, Teaser, and Pirate II.

This is, in brief, some of the history our association has made in the racing line; what it will do in the future we can only conjecture.

In the Middle West

An Explanation of the Methods Employed by the W. P. B. A. and the M. V. P. B. A. A Plea for Universal Restricted Classes Without Any Handicap.

By E. S. Osborn.

I HAVE been asked to tell the readers of Motor BoatinG something about power boat racing in the Middle West during the past season. I warn you now I am going to brag some, for I think we have better racing and do more for the development of the sport in this neck of the woods than anywhere in the country, and I will tell you why. It is because the two big associations, the Western Power Boat Association and Mississippi Valley Power Boat Association, are working in perfect harmony, each one working in its own territory and helping the other in the upbuilding of the sport by adopting uniform racing rules, etc., and each one is satisfied to be the big toad in its own puddle, trying to get as many clubs in its own territory into the fold as it can, and letting it go at that. Some day I hope we can get the Eastern associations lined up with us.

Now, I will try and tell you something of the rules that have built up one of the fastest lots of speed boats in the world. We divide speed boats into four classes, viz: 20, 26, 32, and 40 feet over-all length with no restriction as to type of hull or power. There is no handicap, all starts are flying and the *first boat in wins.* It is as simple as A B C, but it is the rule we work by, and under it we have, as I said before, built up a very fast lot of speed boats. The reason is that under this rule there is some incentive for a man to build a fast boat. If he builds it fast enough, he is going to *win,* where, as under a handicap rule, it would seem that the faster the boat he builds the more likely he is to get beaten. He gets sick of the game and quits, and what is of equal importance the public gets disgusted.

Just to show the difference between this system and the other, when the Western Power Boat Association and the Mississippi Valley Power Boat Association's annual races were held at Peoria under the auspices of the Illinois Valley Yacht Club, and when some of our eastern friends saw from thirty to fifty thousand enthusiatic boating fans lined up along the shore and aboard every sort and type of boat from all over the Middle West (forty-three power boats, mostly lake cruisers, made the 400-mile trip from Chicago), they owned up they had never seen anything like it.

National Association Championship Trophy.

Some of our owners of fast ones would like to go east and race if they had a chance to win on the merit of the boat, but they won't come to be beaten by a handicap rule. You have all read how Scamp III, Comet, Emerson, and Cero II broke the world's records at the Mississippi Valley Power Boat Association races in July and at the Western Power Boat Association races in August, so I won't go into details.

When it comes to cruising races we are not any better off than any other section. I have made up my mind that the only way to build up racing among cruisers and semi-speed boats is for the different associations to get together and adopt a set of restricted classes that will be universal, so that a man can take his boat anywhere and race it, for unless the restrictions are made universal we might as well leave things as they are.

I know that it will be a hard job to put rules like this through, as many of the existing boat owners will object, but the future is what should be considered, and it is up to the men who have the welfare of the sport at heart to go ahead. And I think it will be no trouble to get men to build restricted class boats for the reason that it will be putting a premium on efficiency of the engine and the design of hulls. As it is now, there is not a fleet of boats in a club in the country you can handicap so as to make an interesting race, except a few one-design classes. Restricted classes, on the other hand, have always been successful. Speed boat racing, as we handle it, is growing and getting better all the time, but it is up to the associations to get together, East and West, and make universal restricted classes if we want to preserve the sport at its best.

The Past Season on the Pacific Coast.

A Review of the Motor Boat Racing of 1910 From Mexico to Alaska. How the Interest in the Sport has Spread to Many New Centers.

By a member of the Racing Committee of the P. I. P. B. A.

IT is difficult for a power boat man, especially one nurtured in the "boost" district which lies west of the Rockies, to refrain from exulting over the record made by the past year on the Pacific coast. From Ketchikan to San Diego or, in other words, from Alaska to the Mexican border, the contagion has spread until the whole coast is talking speed and long-distance records, and the boats for next year are already taking form and semblance under the hand of the draftsman.

The International Trophy.

With the acquisition of new recruits from many out-of-the-way corners, a corresponding decadence in the amount, if not the quality, of enthusiasm which formerly characterized some of the recognized motor boat centers has been a much regretted concomitant.

On the other hand, a great wave of enthusiam seems to have enveloped those points on the coast whose physical characteristics make them particularly good centers for motor boat speed races. The Columbia River in particular has shown during the past year an interest which culminated in the big regatta at Astoria, where thousands of people were attracted by the struggle for supremacy between the speed champions of the Pacific coast.

The Astoria regatta of this year will go down in history as a monument to personal effort. It has demonstrated the quality and amount of hard work necessary to promote a race of national significance in a community which has not yet awakened to the possibilities of the game. Way back in January the committee in charge of this event started to hustle. I am confident that almost every motorboat owner on the Pacific coast received a personal invitation. One could hardly pick up a paper after the first of April which did not contain some reference to the Astoria regatta and the spectacular struggle forthcoming for the motor boat supremacy of the Pacific coast. Every motor boat man of prominence was honored by a position or title.

The result of this appeal to the personal side of human nature is a marked tribute to the men who had the regatta in charge, and the Astoria Motor Boat Club is to be greatly congratulated upon having on its roster men of the caliber and unselfishness requisite to accomplish so marked a success. In a concrete way this race with the other speed events has started an interurban rivalry which is taking form in the establishment of syndicates to

purchase new and expensive speed boats to compete this coming year for the championship of the Pacific coast. Portland, Astoria, Tacoma, Seattle, Vancouver, San Francisco, Sacramento, Coos Bay and Eureka are all planning challengers to wrest the coveted title from Wolf II.

Among the new towns to make their debut to the motor boating world during the past season was the town of Vancouver, not in the province of British Columbia, but in the state of Washington on the north bank of the Columbia. Here a club, made up largely of the business men, headed by Commodore C. C. Turlay, put up some thousands of dollars in prizes and attracted a crowd estimated at over 70,000 to watch the fliers on the fourth of July.

At Coos Bay, the landlocked harbor of the southern Oregon coast, the first annual regatta of the Coos Bay Motor Boat Club, proved to be one of the most spectacular events of the season. They say that over three hundred boats participated in the parade.

Reversing the usual attitude and commencing farthest south, Mexico was represented in the racing game this year by the entry of the cruiser Wanderer owned by E. A. Salisbury of Guyamas (Sonora district) in the Puget Sound long-distance race. San Diego, nearly down to the border, has had numerous speed events the year round and a long-distance run to Los Angeles. The junior yacht club of San Diego, for boys under seventeen, is a unique institution. Long Beach, a resort near Los Angeles, has started within the year a new boat club, prominent in which is ex-Commodore Craig of the Interlake Yacht Racing Association. Los Angeles had her trans-Pacific sailing race to Honolulu under the auspices of the South Coast Yacht Club, and a movement is on foot in this club to give more attention to motor boat events than has hitherto been possible. San Francisco has witnessed several interclub races in her beautiful bay, promoted largely through the interest of the Pacific Motor Boat Club of Belvidere, but San Francisco Bay is rather too uncertain for speed boats. Nevertheless, the Sacramento Boat Club brought down its best and succeeded in getting away with the cruiser's class prize and some of the speed trophies. Stockton, on the San Joaquin, is getting into the racing habit and had a lot of new boats, both commercial and pleasure, built there within the past year. The Washington Boat Club, a new organization in Sacramento, has proved useful in arousing a spirit of competition in that city, which has resulted in some splendid events. From E. Forest Mitchell, the sage and seer of the Sacramento Boat Club, may be expected one of the competitors for the coast championship. This year Sacramento's entry for the Astoria event was so damaged in transit that she had to be taken back without entering.

The Interstate Trophy.

On Puget Sound the annual long-distance race of the Pacific International Power Boat Association brought out ten splendidly wholesome cruisers to go over the triangular course of 250 miles from Tacoma to Vancouver, thence to Victoria. This race offered an opportunity for the trial of both the measurement and actual performance system of handicapping in one event and resulted in the rejection by the association of the actual performance system for future contests. The city of Tacoma won a name for itself for its hospitality on this occasion through the efforts of the Tacoma Yacht Club, while Victoria on account of its particularly good accommodations for the ending of such events was selected as the perpetual site of the annual regatta of the Northwestern International Yacht Racing Association.

The Olympia Boat Club, which numbers in its membership the governor and many of the prominent statesmen of Washington, has blossomed forth during the past year at the foot of Puget Sound with a number of programs and cruises. Everett and Bellingham have each celebrated the year, the former by the founding of a new boat club and the latter by the formation of a woman's auxiliary.

Perhaps one of the most important things accomplished during the past year was the run from Ketchikan, Alaska, to Vancouver, B. C., the longest race ever held for motor boats on the Pacific coast. It may be that the length and difficulties of the course had something to do with the withdrawals of all but one of the entries from the lower part of the course. It gave, however, an opportunity for the new Ketchikan Power Boat Club to show its sportsmanship by bringing forward at the eleventh hour two small cruisers to compete against Limit of Vancouver. The feasibility of this race having been demonstrated, it will be included as an annual event of the Pacific International Power Boat Association, a perpetual trophy for the same having been donated by Mr. A. V. Comings.

The Cabin Launch Trophy.

The successful conclusion of the Alaska race marks the retirement from active executive participation in the motor boat game of Secretary Frank M. Foulser, of the P. I. P. B. A. For the past three years Mr. Foulser has labored early and late for the cause of motor boating and a large portion of its growth on the coast can be traced to his efforts. From Alaska to Mexico his various trips have gained him a wide acquaintanceship who regret his decision to retire from office.

By the time this appears in print a general meeting of delegates from all the motor boat clubs on the Pacific Coast will have been held in Portland to discuss plans for the ensuing year. The extension and reorganization of the power boat association to include the entire coast instead of the northwest will be the principal aim of the convention. Hitherto the association has been a body of individual members, which was a wise procedure at the start, but now that it has demonstrated its usefulness, is not sufficiently comprehensive. Representation by delegate with a per capita assessment according to the number of members in each club is the suggested innovation and a standardization of rules to permit of international acceptance of Pacific Coast records is the suggestion to be acted upon. It is possible that under these conditions a challenger will go east from the coast after some of the big national trophies.

In England and on the Continent.

A Review of the Motor Boat Speed Contests Held Last Season in Europe. Cowes, Kiel, Monaco and Other Regattas Considered Retrospectively.

By Linton Hope.

IN the Bournemouth and Netley meetings all the principal events have been won by the hydroplanes; that is, if we take the view of the average spectator who looks upon the fastest race as the most important, and with reason. There were, however, a fair number of starters in the other events, and the M. Y. C. one-design class has given fairly good sport, although these boats, which are by no means slow, have been quite overshadowed by the more sensational doings of the hydroplanes. There were altogether about 100 entries during the Bournemouth three days' meeting.

Good sport and good entries have been prevalent in the various races of the British Motor Boat Club, the London to Cowes race being won by Major, that veteran motor craft formerly known as Napier Major, which, when owned by Mr. S. F. Edge, made the first motor boat cruise from London to the Orkney Islands.

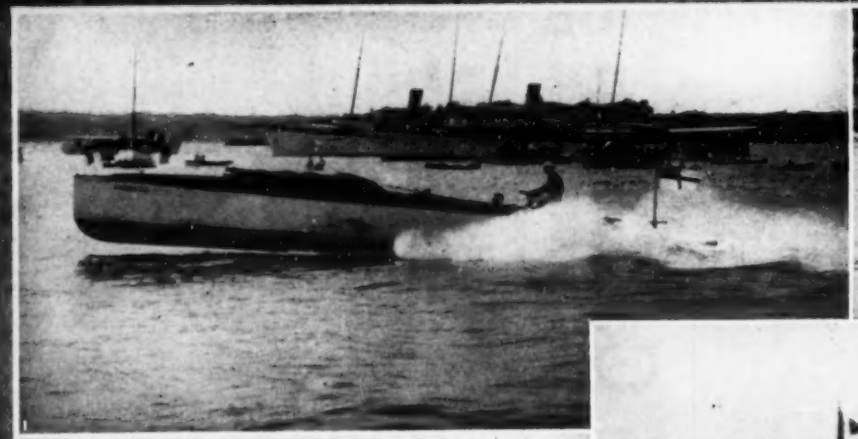
In addition to the events already mentioned, there have been a very large number of motor boat races in Scotland and Ireland, and also at various centers round the coast where there are local motor boat clubs or a sufficient number of locally owned boats to enable a race to be organized. On the upper Thames, where probably there are more motor craft than in any other part of the kingdom, motor boat racing is very rightly prohibited by the Thames Conservancy, as the river is narrow and frequently crowded with punts and canoes, having only a few inches of freeboard, which would easily be swamped by any considerable wash from fast boats.

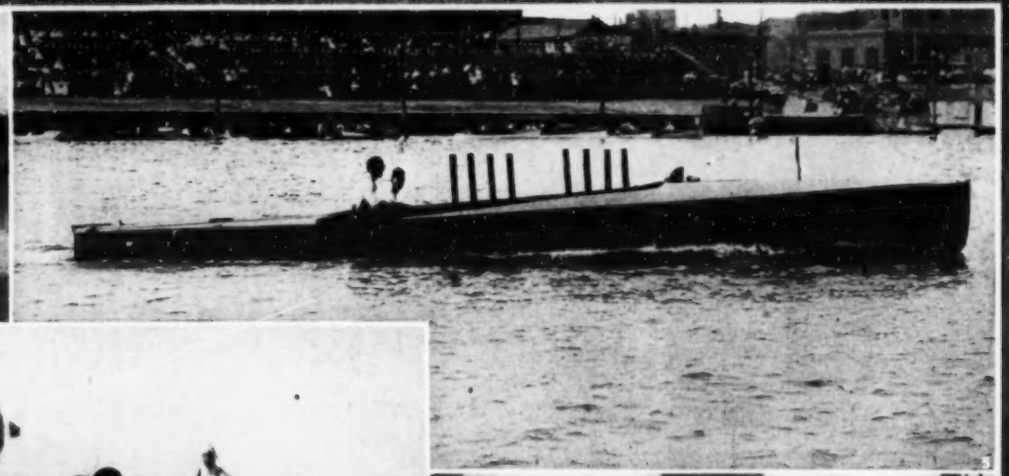
No doubt there are ten times as many motor boats in America as there are in England, but then we have not the natural advantages in the way of land-locked waters and inland lakes, which are so plentiful in America; also we are not so easily converted from sail and steam—please note that, although we may admit this ourselves, we do not care to be told that we are slow and behind the times by anyone else.

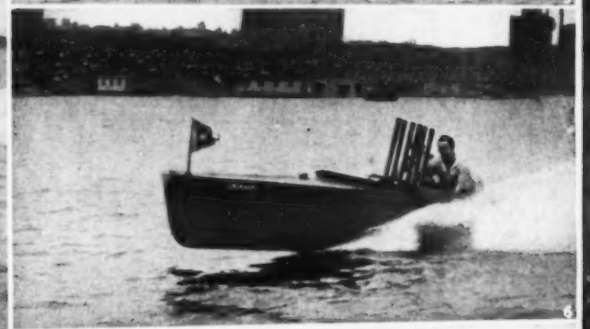
To France belongs the honor of holding what is probable the largest and most famous race meeting in the world for motor boats, The Monaco Regatta, which takes place in the spring before the season in our inclement northern waters begins. At Monaco may be seen all the best motor boats of France, England, and occasionally a very welcome visitor from America, with a sprinkling of racers from Italy, Belgium, and other European countries. The last meeting was a great success, as the entries were plentiful, and several world's records were badly strained, and in a few cases broken—as in the case of the Duke of Westminister's Ursula, which exceeded her pre-

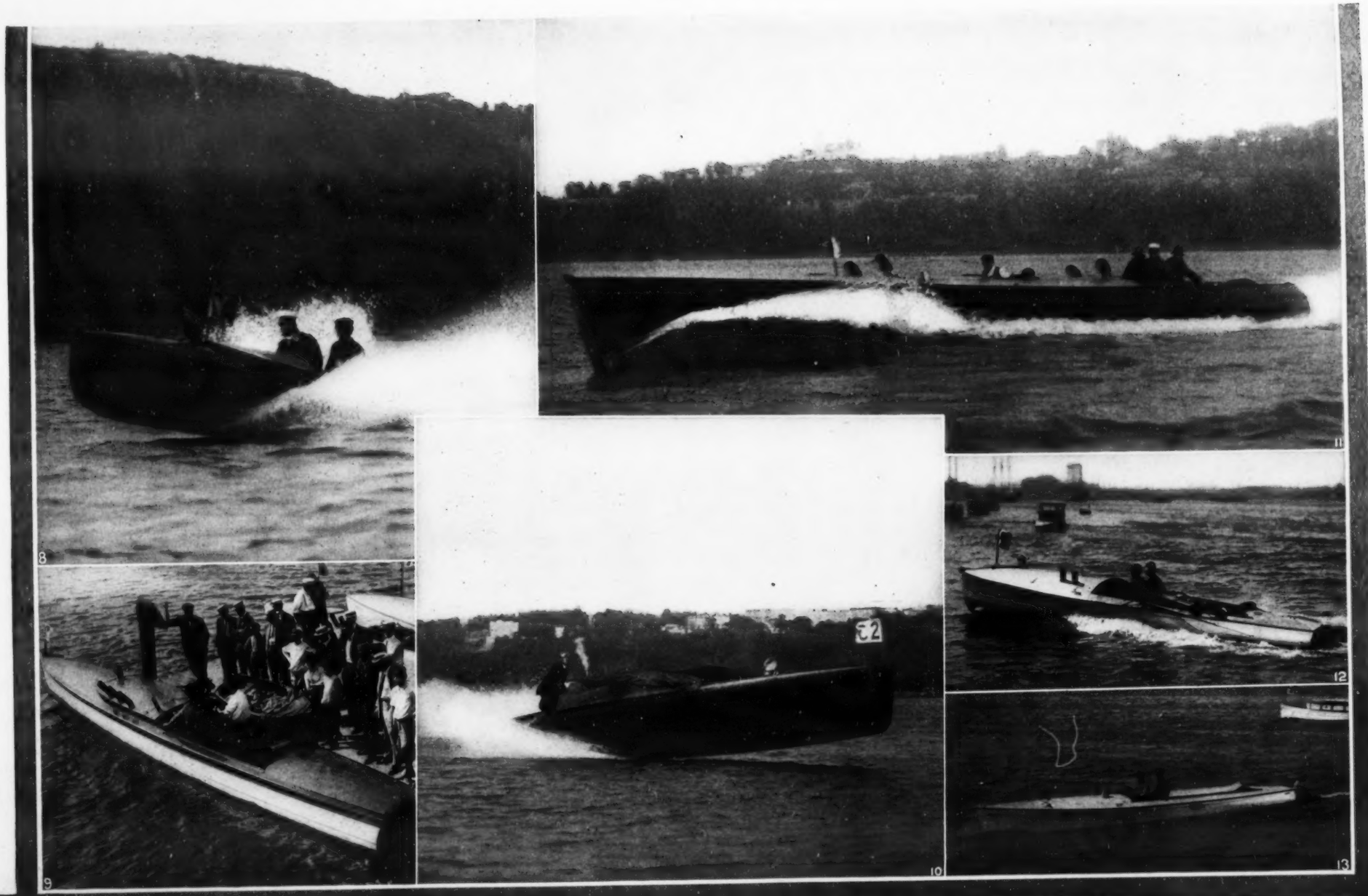
The Alaska Cup.

(*Contin'd on p. 56.*)



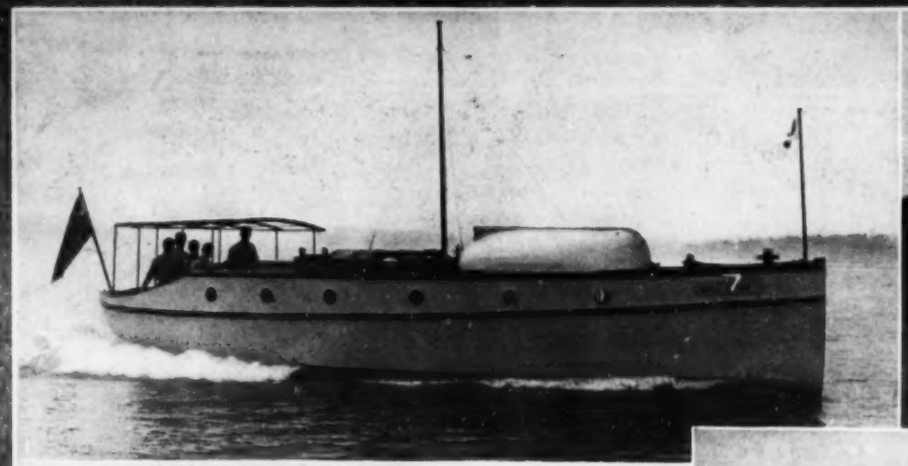


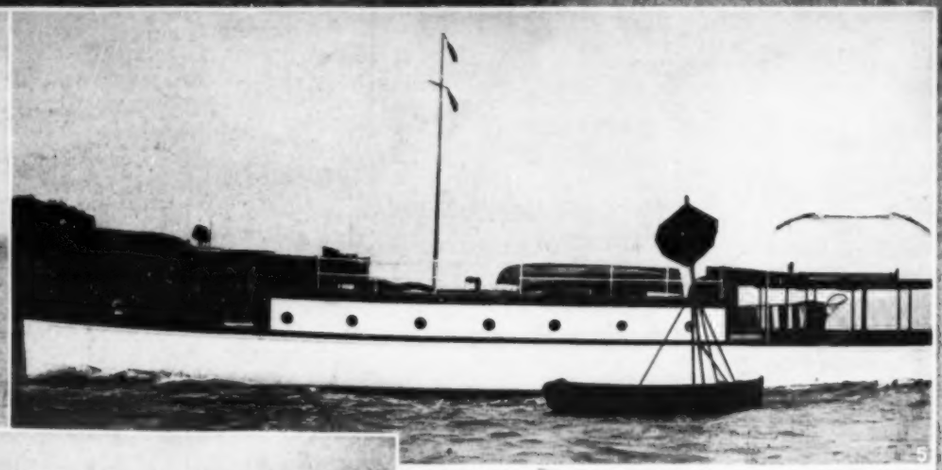


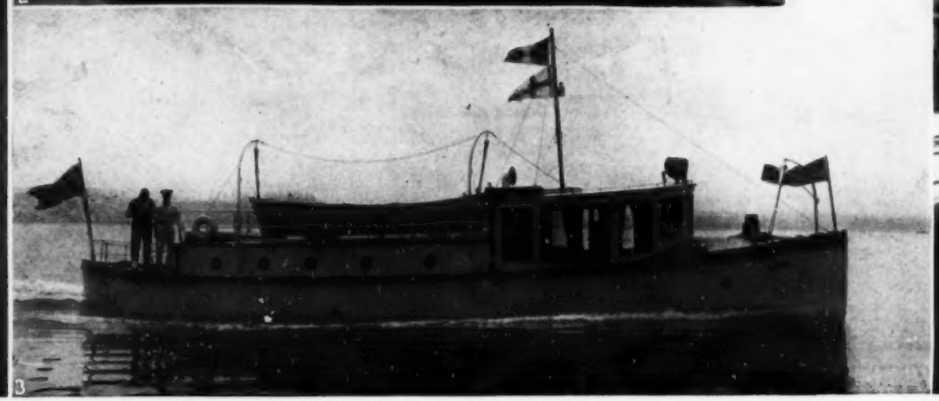


Famous Racers of the Season of 1910.

1.—Pioneer, the Duke of Westminster's Saunders-Fauber hydroplane, the speedy challenger for the British International Trophy. 2.—Cero II, Robert Deming's steamer, that would probably have beaten Dixie at Buffalo, had she not broken a water pipe. 3.—Peter Pan III, holder of the record from New York to Poughkeepsie and return. 4.—The famous Dixie II, defender of the Harmsworth Trophy. 5.—Red Top II, winner of the Western Rivers Championship at Peoria. 6.—Emerson, later called Traver, winner of everything in which she was entered at Peoria. 7.—Comet, the little 20-footer that broke her world's record at Peoria. 8.—Edith II, winner of the Interstate Trophy. 9.—Zip II, winner of class "80 and over" in the long distance race of the Holley Beach Y. C. 10.—Restless, winner of the International Championship Cup. 11.—Tartar, holder of the National Trophy. 12.—Uyvonne, winner of class "60-70" in the Holley Beach Y. C. long distance race. 13.—Kathryn, winner of class "70-80" in the same race.







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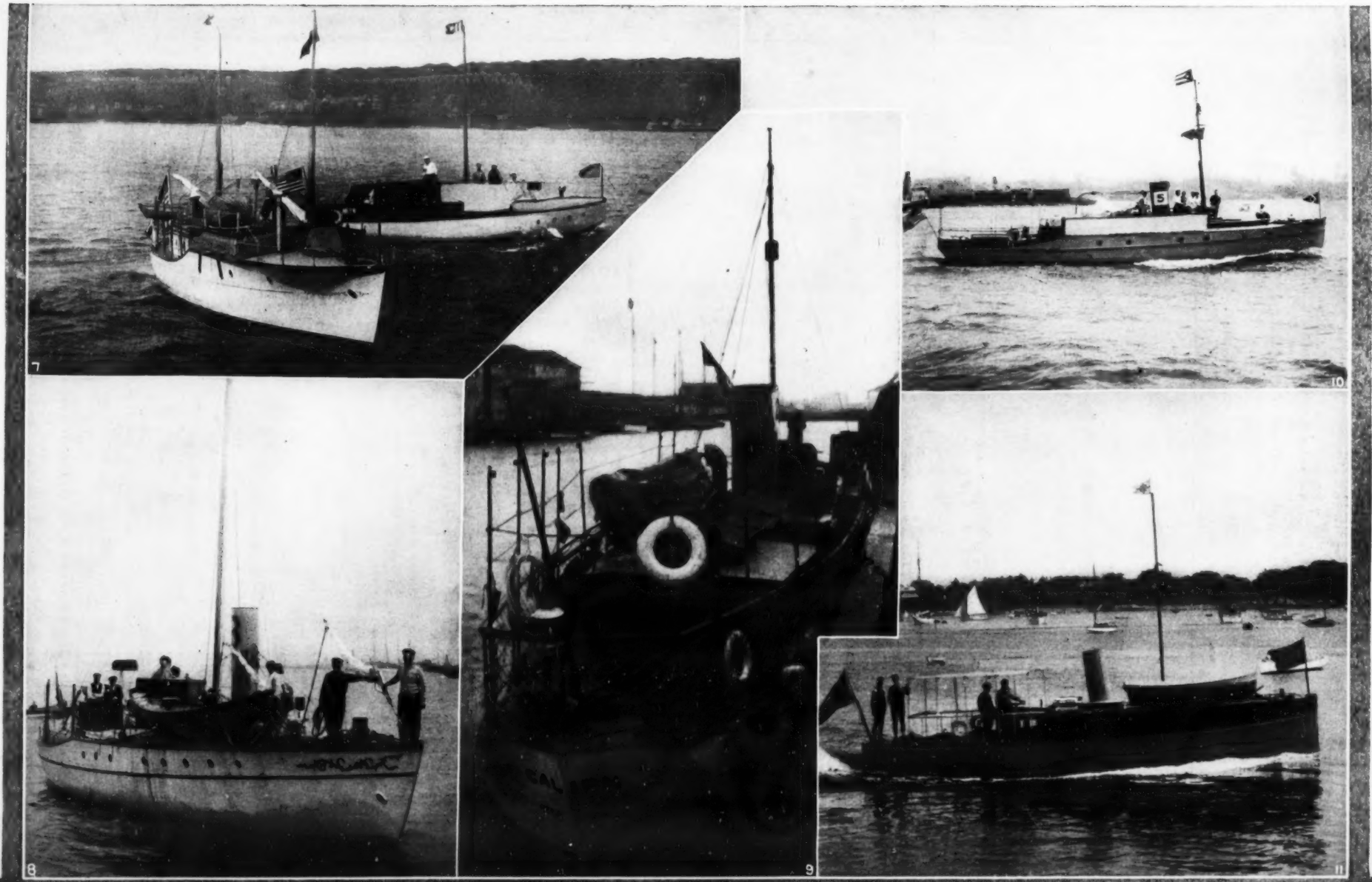


Famous Cruisers of the Season of 1910.

1.—Half Moon, winner of the Pacific International Long Distance Race. 2.—Elmo II, winner of the New York-Albany, Marblehead and many other races. 3.—Limit, winner of the Alaska-Puget Sound Race at the remarkable average of 10.65 miles an hour. 4.—Doze, a successful member of the Lake Michigan fleet. 5.—Avis, winner of the Motor Yacht Trophy in the Hudson River Regatta. 6.—Ilys, winner of the Ocean Race of the Yachtsmen's Club of Philadelphia, and a veteran racer. 7.—Eronel, the winner, and Yo Ho, the other contestant in the Bermuda Race. 8.—Caroline, winner of the New York-Peekskill race for cruisers. 9.—Caliph, winner of the time prize in the Philadelphia-Havana Race and winner of the return race to Atlantic City. 10.—Berneyo, winner of the Havana Race. 11.—Blue Peter V established a new record for the Marblehead Race course, but was beaten on handicap.

A Record of Motor Boat Racing.

An Historical Review of the Principal Contests Since the Advent of the Sport. The Winners, The Fastest Boats, Their Times and the Courses.

On this page are considered only contests of national importance—races for some perpetual trophy or championship. Some of these occur in regattas held by clubs or associations throughout the country, and a record of these regattas, together with other racing events for the past season will be found on the several pages following.—EDITOR.

YEAR.	NAME OF WINNER.	CORRECTED TIME OF WINNER.	WINNER OF TIME PRIZE.	ELAPSED TIME.	LENGTH OF COURSE.	NUMBER OF ENTRANTS.	WHERE THE RACE WAS HELD.
The Philadelphia-Havana Race.							
1910	Berneyo	5:18:43:53	Caliph	6:15:18:14	1300 n. m.	4	Philadelphia to Havana
Havana-Atlantic City.							
1910	Caliph	4:14:30:00	Caliph	4:14:30:00	1300 n. m.	4	Havana to Atlantic City
Bermuda Race.							
1907	Ailsa-Craig	65:39:00	Ailsa-Craig	65:39:00	630 n. m.	2	New York to Bermuda
1908	Ailsa-Craig	66:32:30	Ailsa-Craig	66:32:30	650 n. m.	2	New York to Bermuda
1909	Heather	80:56:18	Heather	80:56:18	650 n. m.	4	New York to Bermuda
1910	Eronel	87:29:00	Eronel	87:29:00	650 n. m.	2	New York to Bermuda
The Marblehead Race.							
1905	Talisman					12	New York to Marblehead
1906	Sis	28:20:41	Unome	33:25:40	270 n. m.	12	Marblehead to College Point
1907	Picaroon	28:46:24	Hopalong	30:42:35	275 n. m.	7	New Rochelle to Marblehead
1908	Irene II	27:03:20	Irene II	27:03:20	275 n. m.	13	Marblehead to New Rochelle
1909	Elmo II	25:24:55	Josephine	32:01:45	270 n. m.	12	New York to Marblehead
1910	Elmo II	26:58:03	Blue Peter V	27:34:35	270 n. m.	4	Marblehead to New York
The Block Island Race.							
1909	Martha	13:27:00	Margo	12:30:00	100 n. m.	5	New Rochelle to Block Island
1910	Elmo II	10:27:00	Margo	12:14:00	100 n. m.	8	New Rochelle to Block Island
New York-Albany and Return							
1909	Martha	24:33:00	Elmo II	30:50:00	270 m.	10	Hudson River
1910	Elmo II	30:19:00	Elmo II	32:17:00	270 m.	13	Hudson River
Pacific International Long Distance Race.							
1908	Traveller	17:52:00	Soya	17:12:00	182 m.	19	Seattle to Vancouver
1909	Soya	21:30:00	Soya	21:30:00	225 m.	15	Seattle to Vancouver
1910	Half Moon	20:22:19	Limit	21:32:00	225 m.	9	Seattle to Vancouver
British International Cup Race.							
1903	Napier I				7.8 n. m.	2	Queenstown
1904	Trefle-a-Quatre				7.8 n. m.	3	Cowes
1905	Napier II				7.7 n. m.	2	Arachone
1906	Yarrow-Napier				7.7 n. m.	2	Cowes
1907	Dixie	1:15:54			30 n. m.	3	Cowes
1908	Dixie II	1:04:57			30 n. m.	3	Huntington, L. I.
1910	Dixie II	59:44			30 n. m.	3	Larchmont
Gold Cup Race.							
1904	Standard				30 n. m.		New York
1904	Vingt-et-Un				30 n. m.		Chippewa
1905	Chip				30 n. m.		Chippewa
1906	Chip II	1:27:01	Skeeter		30 n. m.	12	Chippewa
1907	Chip II	1:26:43	Stranger	1:04:56	30 n. m.	5	Chippewa
1908	Dixie II	1:01:37	Dixie II	1:01:37	30 n. m.	6	Chippewa
1909	Dixie II	1:06:50	Dixie II	1:06:50	30 n. m.	4	Alexandria Bay
1910	Dixie II	57:14	Dixie II	57:14	31⅔ n. m.	4	Alexandria Bay
Holley Beach Race.							
1910	Zip II Class 80 & above	4:49:03			108 m.	2	Holley Beach to Camden
1910	Kathryn Class 70-80	5:25:49			108 m.	3	Holley Beach to Camden
1910	Uyvonne Class 60-70	6:30:16			108 m.	3	Holley Beach to Camden
Hudson River Y. R. Association.							
1907	Black Cat	23:32	Black Cat	29:20	10 m.	5	Kingston
1908	Clip	52:03	Elmer L	50:21	14 m.	6	Poughkeepsie
1909	Elmer L	36:40	Elmer L	45:39	20 m.	3	Tarrytown
1910	Elmer L	56:56	Elmer L	56:56	20 m.	4	Ossining
Western Rivers Championship.							
1908	Minnie C. II	47:45			20 m.	5	Muscatine
1909	Lamb IV	45:48			20 m.	4	Burlington
1910	Red Top II	43:40			20 m.	7	Peoria
W. P. B. A. Championship.							
1909	Hoosier Boy	45:18	Hoosier Boy	45:18	20 m.	5	Peoria
1910	Emerson	10:14	Emerson	10:14	5 m.	6	Peoria
Thomas Trophy.							
1909	Arab III	55:46			25 m.	2	Buffalo
1910	Dixie II	1:05:13			35 m.	7	Buffalo
Annual Events of the National Association of Engine and Boat Manufacturers.							
New York-Peekskill and Return.							
1907	Idler	3:36:50	Grayling	4:22:00	75 n. m.	14	Hudson River
1908	Alabama	3:57:56	Alabama	4:55:14	50 n. m.	17	Hudson River
1909	Irene II	4:56:45	X. L.	5:59:43	60 n. m.	15	Hudson River
1910	Caroline	3:55:44	Avis	4:32:51	60 n. m.	8	Hudson River
Motor Yacht Trophy.							
1907	Alabama	1:53:51	Alabama	1:53:51	20 n. m.	4	Hudson River
1908	Alabama	1:59:47	Alabama	1:59:47	20 n. m.	1	Hudson River
1909	Avis	1:32:02	Avis	1:34:19	20 n. m.	3	Hudson River
1910	Avis	1:41:42	Avis	1:41:42	20 n. m.	2	Hudson River
National Trophy.							
1906	Skidaddle	1:22:10	Skidaddle	1:22:10	30¾ n. m.	3	Hudson River
1907	Skidaddle	1:13:22	Skidaddle	1:19:53	30 n. m.	3	Hudson River
1910	Tartar	1:01:12	Tartar	1:01:12	30 n. m.	3	Hudson River
International Trophy.							
1906	Dixie	1:19:06	Dixie	1:19:06	30¾ n. m.	4	Hudson River
1907	Irene	1:15:07	Irene	1:15:07	30 n. m.	3	Hudson River
1908	Dixie II	1:05:37	Dixie II	1:05:37	30 n. m.	1	Hudson River
1909	Dixie II	55:50	Dixie II	55:50	30 n. m.	3	Hudson River
1910	Restless	1:19:35	Restless	1:19:35	30 n. m.	2	Hudson River
Interstate Trophy.							
1906	Sparrow	1:07:17	Sparrow	1:36:48	30¾ n. m.	11	Hudson River
1907	Sparrow	1:26:39	Sparrow	1:32:53	30 n. m.	6	Hudson River
1908	Vim	1:06:22	Den	1:26:36	30 n. m.	6	Hudson River
1909	Den	1:28:47	Vim	1:27:34	30 n. m.	8	Hudson River
1910	Edith II	1:21:32	Vim	1:30:07	30 n. m.	10	Hudson River
New York-Poughkeepsie and Return.							
1906	Sparrow	3:08:25	Artful	6:05:33	115 n. m.	9	Hudson River
1907	Skidaddle	4:44:27	Den	5:06:28	116 n. m.	6	Hudson River
1908	Vim	3:47:59	Vim	5:49:44	140 m.	6	Hudson River
1909	Den	5:46:59	Gunfire II	5:54:20	115 n. m.	6	Hudson River
1910	Edith II	3:35:18	Peter Pan III	5:22:43	115 n. m.	10	Hudson River

NOTE: The distances are given in some cases in miles and in others in nautical miles, indicated by m. and n. m.

Racing Review for the Season of 1910.

A List of all the Races Held During the Past Season Arranged Chronologically. Their Winners and the Clubs Under Which They Were Held.

On this and the four following pages appears a list, as complete as it is possible to have such a list, of all the motor boat races held in this country during the season of 1910, together with the names of the winning boats and the clubs or organizations under whose auspices they were held. Letters were sent to all of the clubs and the material received in reply to these composes the greater part of this list. However, in an effort to make this department as complete and authentic as possible, we have gathered material from every available source, checking and tabulating it to avoid duplication or error.—EDITOR.

Date.	Club and Address.	Distance (Miles).	Winner.
Feb. 7	Pensacola (Fla.) Y. & M. B. C..		Donna
Feb. 22	Eau Gallie (Fla.) Y. C.....	15	Winsome
		10	Mountaineer
		6	K. M. I.
Mar. 15	Palm Beach (Fla.) P. B. Assn...	6	Buffalo Courier II
		9	Diana
		9	Jack Rabbit
Mar. 16	Palm Beach (Fla.) P. B. Assn...	4½	Eau Gallie
		4½	Bruiser
		4½	Diana
		18	Dewey
Mar. 17	Palm Beach (Fla.) P. B. Assn...	4½	Gertrude F.
		4½	Dewey
		9	Eau Gallie
		4½	Bruiser
		9	Bruiser
Mar. 18	Palm Beach (Fla.) P. B. Assn...	103	Dewey
Mar. 30	St. Augustine (Fla.) P. B. C....	12	Red Bird
		18	Diana
Mar. 31	St. Augustine (Fla.) P. B. C....	12	Jack Rabbit
		18	Red Bird
Apr. 1	St. Augustine (Fla.) P. B. C....	12	Red Bird
		24	Ram
Apr. 30	Portland (Ore.) Motor B. C.....	9	Wolf II
		9	Red Arrow
		9	Augusta
		9	Kittie II
May 3	Volun. Sail. Club, New Haven, C.	7½	Margaret
		7½	Eugenia
		7½	Spray
May 21	Yachtsmen's Club of Philadelphia & Havan Y. C.....	1300	Berneyo
May 28	Wash. & Sacramento (Cal.) B. C.'s.		Azoria
			Possum 20
			Pankost
			"H. S."
			Pankost 23
			Possum
			Pankost 24
May 29	Camden (N. J.) Motor B. C.....	20	Zip
		7½	Turtle
		7½	Rambler
May 29	Erie Basin Y. C., Brooklyn, N. Y.	15	Urez
May 30	Tacoma (Wash.) Y. C.....	60	Marana
May 30	Taunton (Mass.) Y. C.....	3⅓	Anna
		3⅓	Ruth
		3⅓	Hustler
		3⅓	Loraine
May 30	Independent M. B. C., New Bedford, Mass.	4	Alice
		4	Sachem
May 30	Brooklyn (N. Y.) Y. C., Around Staten Island.....		Neptune II
			Niobe
May 30	Seattle (Wash.) Y. C.....	58	Marana
May 30	Portland (Ore.) M. B. C.....	2	Wolf II
		2	Kittie
		2	Augusta
May 30	New Bedford (Mass.) Y. C.....	8	Squke
May 30	Buckeye Lake Y. C., Columbus & Newark, O.	3	Unidilla II
		3	Avenell III
May 30	Byram Riv. Y. C., Port Chester, N. Y.....		Sinbad
May 30	Camden (N. J.) M. B. C.....	21	Zip II
			Rambler
			Turtle
May 30	Jackson Park Y. C., Chicago,	22	Swastika
			Twister
May 30	Robbins Reef Y.C., Bayonne, N. J.	12	Kaiser
		12	Fluke
		10	Brownie
May 30	Sacramento (Cal.) & Washington Boat Clubs	2	Louise
		2	Pankost 20
		2	Wanda
May 30	Sacramento (Cal.) B. C.....	92	Wanda
May 30	Sioux City (Iowa) Y. C.....	8	Veta
May 30	South Boston (Mass.) Y. C.....	16	Snap Shot
		9	Peggy
May 30	South Shore Y. C., Freeport, N. Y.	12	Elnor K
		18	Mildred V
		30	Jack Gordan
May 30	Yonkers (N. Y.) Y. C.....	6	Colonial
		6	Isabel
May 31	McHenry (Ill.) Power B. C.....	2⅓	Yes
June 4	Havana Y. C. & Seaside Y. C., Atlantic City (N. J.).....	1300	Caliph
June 4	Columbia Y. C., So. Boston, Mass.	9	Beach Comber
June 4	Jackson Park Y. C., Chicago, Ill..	7	Nokomis
June 4	North Vancouver (B. C.) Y. C...	60	Kathleen N
June 5	Cleveland (O.) P. B. C.....	3	Juanita
		6	Siss
		12	Traveler
		6	Stormy Jim
June 11	Jackson Park Y. C., Chicago, Ill.	14⅞	Uandi
June 11	Mosquito Fleet Y. C., So. Boston, Mass.		Snap Shot
			May S
June 11	Southern Y. C., New Orleans, La.	12	Osprey
		12	Iola
		12	Dorinda
		12	Wang
		12	Scout
June 11	Stamford (Conn.) Y. C.....		Wave
			Runabout
June 11	Weetamoe Y. C., Providence, R. I.	2	Question
June 12	Excelsior Y. C., Brooklyn, N. Y..	10	Excelsior
		10	Vixen
June 12	Cleveland (O.) P. B. C.....	3	Vixen
		6	Mona Lowa
		6	Speejacks
		12	Traveler
June 13	Corinthian Y. C., Washington, D. C.	10	August Belmont
June 13	Yachtsmen's Club, Phila., Pa....	30	Sody Mond
June 17	Quincy (Mass.) Y. C.....	5	Susan W.
June 18	Barrington (R. I.) Y. C.....	10	San Toy
June 18	Buffalo (N. Y.) L. C.....		Scout
			Zuleika
		10	Dawn
June 18	Cleveland (Ohio) Y. C.....	21	Red Devil
		6	Rae
June 18	Columbia Y. C., Chicago, Ill.....	37	Wa Wa Ty See
		37	Eljonior
		37	Gloria
		37	Vandi
June 18	Quincy (Mass.) Y. C.....	5	Red Wing
June 20	Houston (Tex.) L. C.....	25	Edna II
		28	Skido
June 21	Houston (Tex.) L. C.....	12½	Inola II
		8	Lollie Belle
		5	Hennie
		28	Joe Bailey
		15	Vera Belle

Date.	Club and Address.	Distance (Miles).	Winner.
June 21	Yacht Racing Assn., Jamaica Bay, L. I.	10	Vixen
		10	Hilde
		10	Onward
June 22	Houston (Tex.) L. C.	15	Lynn II
		8	De Mooy
		28	Joe Bailey
June 25	Huguenot Y. C., New Rochelle, N. Y.	10	Ahtram
June 25	Camden (N. J.) M. B. C.		Kid
			Antlers
			Turtle
June 25	Cleveland (Ohio) Y. C.	21	Ferro
		6	Buffalo
June 25	Columbia Y. C., So. Boston, Mass.	7	Beach Comber
June 25	Jackson Park Y. C., Chicago, Ill.	8	Gladys L
June 25	Motor B. C. of America & Royal Bermuda Y. C.	670	Eronel
June 25	Royal Hamilton (Ont.) Y. C.	15	Mavis
		5	Warren
June 25	Wilmington (Del.) Y. C.	3	Wifica
		13	Zip
June 26	Lakewood Y. C., Cleveland, Ohio.	2½	Louise, Jr.
		5	Heatherbell
		10	Alice M
		10	Gadfly
June 26	New York A. C.	100	Elmo II
June 26	San Diego (Cal.) Y. C.	90	Vagabond
June 30	M. B. C. of Ithaca (N. Y.)	7½	Ogarita
June 30	Tappan Zee Y. C., Grand View-on-Hudson, N. Y.	10	Grace
		10	Sea Robin
		10	Saxon
July 2	Buffalo (N. Y.) L. C.	5	Snip
		10	Major II
July 2	Huntington (L. I.) Y. C.	10	Edith II
July 2	Hartford (Conn.) Y. C.		Fatima
July 2	Ocean City (N. J.) Y. C.		Reba L
			Crest
July 2	Sea Isle City (N. J.) Y. & M. C.	6	Shrimp
		7	Mary C-I
		11	Sunbeam
		11	Mary C
		9	Daneva
July 2	So. Shrewsbury (N. J.) I. B. & Y. Assn.	10	Midget
		5	Look
July 2-3	Pacific Int'l. P. B. Assn.	230	Half Moon
July 2	Taunton (Mass.) Y. C.	6⅔	Mavelyn
July 3	Cleveland (Ohio) P. B. C.	39¼	Aurora
July 3	Lakewood Cleveland (Ohio) Y. C.	20	Craftsman
		5	Dreamer, Jr.
		10	Beatrice B.
		10	Florence II
		30	Alice M
July 3	Robbins Reef Y. C., Bayonne, N. J.	42	Clio
July 4	Buckeye Lake Y. C., Columbus & Newark, Ohio.	4	Unidilla II
		12	Unidilla II
		4	Alladin
July 4	Buffalo (N. Y.) L. C.	10	La Truda
July 4	Clayton (N. Y.) B. C.	21	Onion I
		14	One design No. 10
July 4	Crescent Y. C., Watertown, N. Y.	4	Rene II
July 4	Illinois Valley Y. C., Peoria, Ill.	5	Rana
		15	Cero II
		20	Sparks II
		10	Comet
July 4	Independent M. B. C., New Bedford, Mass.	4	Alice
		4	T. D.
July 4	Jamaica Bay (L. I.) Y. R. A.	11	Joppa
July 4	Lake George Club, Hill View, Lake George, N. Y.	10	Winninish
July 4	Lake Whatcom M. B. C.	1¾	Isabelle
		3½	Belle
		1¾	Redondo
		1¾	Queen
		1¾	Merry Widow
		1¾	Redondo
July 4	McHenry (Ill.) P. B. C.	6½	Myrtle
July 4	Pensacola (Fla.) Y. & M. B. C.		Donna
July 4	Remlik B C., Binghamton, N. Y.	1	Slipaway
		1	Zeni
		1	Pirate
		1	Red Imp
		1	Red Imp
July 4	Rowayton (Conn.) Y. C.	5	Eleda
July 4	Shelter Island (S. I. Heights, N. Y.) Y. C.	20	Palosita
July 4	Sioux City (Iowa) Y. C.	8	B. O. E.
July 4	South Shore Y. C., Freeport, N. Y.	12	Hoteloquitit
		30	Kid
July 4	Springfield (Mass.) Y. C.	5½	Viola
		5½	Gretchen
		5½	Weona
July 4	Spring Lake (Mich.) M. B. C.	6½	El-Aquila
		6½	Dorothea
		6½	Easy Life II
		6½	Marie
July 4	Stone Harbor (N. J.) Y. C.	10	Idaho
		10	Kathryn
		10	Snip
July 4	Tappan Zee Y. C., Grand View-on-Hudson, N. Y.	10	Grace
		10	Sea Robin
July 4	Taunton (Mass.) Y. C.	3⅓	Me 2
		3⅓	Mavelyn
		3⅓	Gertrude
July 4	Wakefield, (R. I.) Y. C.	8	A. Brown, owner
July 4	Wilmington (Del.) Y. C.	3	Isabella
		6	Diana
July 4	Yonkers (N. Y.) Y. C.	10	Spray
		10	Regina
		10	Isabel
July 5	Illincis Valley Y. C., Peoria, Ill.	10	Scamp III
		20	Red Top II
		15	Wux
July 5	Island City B. A., Rock Island, Ill.	3½	Alice H.
		5	Mallard
		5	Jewell II
July 5	Pewaukee Y. C., Pewaukee Lake, Wis.	5.19	Flyer
July 5	Royal Hamilton (Hamilton, Ont., Can.) Y. C.	15	Wanmette
		5	Warren
July 5	Victoria (B. C.) Y. C.	12	Limit
July 6	Illinois Valley Y. C., Peoria, Ill.	20	Meteor
		30	Pippin
		15	Comet
July 7	M. B. C. of Ithaca (N. Y.)	7½	Keoa
July 8	Yachtsmen's Club, Philadelphia, Pa.	160	Ilys
July 9	Barrington (R. I.) Y. C.	15	Lot
		15	Water Wagon
July 9	Chicago Y. C.	37	Arapahoe
		37	Waubesa
		22	Leila
July 9	Cleveland (Ohio) Y. C.	21	Loew Victor
July 9	Lake Hopatcong Y. C., L. H. Landing, N. J.	20	Peter Pan III
		10	Pegasus
		5	Red D
July 9	Motor B. C., Buffalo, N. Y.	15	Red Head
		10	Nosida
July 9	Ocean City (N. J.) Y. C.		Eva-Dor
			Peggy
July 9	Sea Isle Y. & M. C., Sea Isle City, N. J.	9	Daneva
		9	Mary C II
		9	Sue
July 9	Vancouver (B. C.) Yacht Club.	30	Wolf II
July 9	Wilmington (Del.) Y. C.	13	Alfred II
July 10	McHenry (Ill.) Power B. C.	6½	Mary Magdalene
July 10	Pewaukee Y. C., Pewaukee Lake, Wis	5.19	Flyer
July 10	Vancouver (B. C.) Y. C. & Portland M. B. C.	30	Wolff II
		30	Seattle Spirit
		15	Happy Heinie
		15	Spear

Date.	Club and Address.	Distance. (Miles.)	Winner.
July 12	Camden (N. J.) M. B. C.....	100	Uyvonne
		100	Rambler
		100	Turtle
July 14	Motor Boat Club of Ithaca (N. Y.)	7½	Ogarita
July 14	Yachtsmen's Club, Philadelphia, Pa.	90	Ilys
July 16	Duluth (Minn.) B. C.	15	Ripple
July 16	Lake Hopatcong, L. H. Landing, N. J.	20	Gopher
		10	Idler
		5	Neptune
July 16	Louisville (Ky.) M. B. C.....	2	Adeline
		2	Marjorie
		10	Dr. B.
		15	Little Captain
July 16	Middletown (Conn.) Y. C.....	8	Arline
		8	Victor II
		8	Elspith
July 16	Ocean City (N. J.) Y. C.....		Petrel
			Toby's Bark
			Guidon
			Beatrice
			Rena III
			C. J. C.
July 16	Royal Hamilton (Ont., Can.) Y. C.	2	Mavis
July 16	Spring Lake (Mich.) M. B. C..	6½	Easy Life II
		6½	El Aquila
		6½	Sight
		6½	Ready
July 16	Taunton (Mass.) Y. C.....	3⅓	Hustler
July 16	Wilmington (Del.) Y. C.....	3	Heinel
July 17	McHenry (Ill.) Power B. C....	6½	Percy
July 17	New York M. B. C.....	6	Burk III
		12	Monroe
July 17	Pewaukee Lake (Wis.) Y. C....	5.19	Clara
July 17	Taunton (Mass.) Y. C.....	33	Mohawk
July 17	Yacht Racing Assn. Jamaica Bay, L. I.	10	Tussacora
		10	Vixen
July 19	Corinthian Y. C., Washington, D. C.	10	Emerson
July 20	Sea Isle City (N. J.) Y. & M. C.	9	Daneva
		9	Mary C II
		9	Mary C
		9	Emma R
July 21	Motor B. C. of Ithaca (N. Y.).	7½	Wanda
July 22	Larchmont (N. Y.) Y. C.....	60	Edmee
		60	Ilys
July 23	Bristol (Pa.) Anchor Y. C.....	10	Zip II
July 23	Byram River Y. C., Pt. Chester, N. Y.	70	Carrie F
July 23	Columbia Y. C., So. Boston, Mass.	7	Beach Comber
July 23	Duluth (Minn.) B. C.....	10	Fritz, Jr.
July 23	Frontenac (N. Y.) Y. C.....	14	Number 10
		21	Dixie II
July 23	Huguenot Y. C., New Rochelle, N. Y.	8½	Leonora
July 23	Kennebec Y. C., Bath, Me.....	8.7	Alice
July 23	Lake Hopatcong Y. C., L. H. Landing, N. J.	20	San Toy III
		10	Soul Kiss
		5	Imp
July 23	Moosehead Lake (Me.) Y. C...		Clematis
July 23	Ocean City (N. J.) Y. C.....		Petrel
			Reba L
			La Lah
			Bridget
July 23	Royal Hamilton (Ont., Can.) Y. C.	15	Wannette
		5	Lizzie
July 23	Wilmington (Del.) Y. C.....	6	Heinel
		13	Viviginia
July 24	McHenry (Ill.) P. B. C.....	6½	Jewel C
July 24	Pewaukee Lake (Wis.) Y. C...	5.19	Czarina
July 25	Lake George (Hill View, N. Y., Club	5	Pippa
		10	Winninish
		5	Svea
		10	Winninish
July 26	Holly Beach (N. J.) Y. C. & Camden M. B. C.....	108½	Uyvonne
			Kathryn
			Zip II
July 26	Clayton (N. Y.) B. C.....	21	Dixie I
		21	Flying Duck
		14	No Name
July 27	Buffalo (N. Y.) I. C.....	10	Fearless
		10	Arab
July 28	Buffalo (N. Y.) L. C.....	10	Dawn
		10	La Truda
July 28	Motor B. C. of Ithaca (N. Y.)..	7½	Ogarita
July 29	Buffalo (N. Y.) L. C.....	20	Dragon
		30	Arab II
		55	Neried
July 30	Buffalo (N. Y.) L. C.....	20	Niagara II
		20	Dragon
		20	Red Head
		30	Hoosier Boy
July 30	Colonial Y. C., New York City..	16	Alma II
July 30	Columbia Y. C., New York City	10	Elise
		10	Gracelda
		15	Gunfire
		15	Prodigy
July 30	Duluth (Minn.) B. C.....	10	Dixit
July 30	Kennebec Y. C., Bath, Me.....	8.7	Zip
July 30	Lake Hopatcong Y. C., L. H. Landing, N. J.....	20	Gopher
		10	Peter Pan
		5	Hamilton
July 30	Moosehead Lake (Me.) Y. C...		Runabout
July 30	Pootatuck Y. C., Stratford, Conn.	5	Nettie
July 30	Sea Isle City (N. J.) Y. & M. C.	9	Emma R
		9	Daneva
		9	Mary C II
		11	Mary C
July 30	Spring Lake (Mich.) M. B. C...	6½	Ah-ha
		6½	el-Aquila
		6½	Alice
		6½	Toquit
July 31	Los Angeles (Cal.) M. B. C....	10	Iroquois
July 31	McHenry (Ill.) P. B. C.....	6½	Ed
July 31	New York M. B. C., N. Y. City..	6	Bunk III
		12	Arlington II
July 31	Pewaukee Lake (Wis.) Y. C....	5.19	It
Aug. 1	Seaside Y. C., Atlantic City, N. J.	20	Pasadena
Aug. 1	Toronto (Can.) M. B. C.....	14¾	Miss Hasty
Aug. 2	Burlington (Iowa) Y. C.....	10	Stave Island
		10	Spendthrift
		10	Elsa
Aug. 4	Motor B. C. of Ithaca, N. Y...	7½	Wanda
Aug. 6	Cleveland (Ohio) P. B. C.....	124	Aurora
Aug. 6	Colonial Y. C., New York City..	16	Alma II
Aug. 6	Duluth (Minn.) B. C.....	15	Mermaid
Aug. 6	Kennebec Y. C., Bath, Me.....	8.7	Zip
Aug. 6	Lake Hopatcong Y. C., L. H. Landing, N. J.....	40	Bonita
Aug. 6	Norristown (Pa.) M. B. C.....	2	Frances
		4	Smash
		6	Bud-Had
		2	Perfex
Aug. 6	Ocean City (N. J.) Y. C.....		Albatross
			Pasadena
			Vanish
			La Lah
			Mabelle R
			Caroline
Aug. 6	Quincy (Mass.) Y. C.....	5	Susan W
Aug. 6	Rowayton (Conn.) Y. C.....		Jacmar
Aug. 6	Royal Hamilton (Ont., Can.) Y. C.	15	Wannette
		5	E. C. B.
Aug. 6	Sea Isle City (N. J.) Y. & M. C.	9	Sue
		9	Daneva
		9	Mary C II
Aug. 7	Cleveland (Ohio) M. B. C.....	124	Aurora
Aug. 7	Excelsior Y. C., Brooklyn, N. Y.	10	Excelsior
		10	Tiny
Aug. 7	McHenry (Ill.) Power B. C.....	6½	Eleanor
		6½	Charlie
Aug. 7	Pewaukee Lake (Wis.) Y. C....	5.19	Flyer
Aug. 7	Waucoma Y. C., New Haven, Conn.	48	Clarence

Date.	Club and Address.	Distance (Miles).	Winner.
Aug. 10	Frontenac (N. Y.) Y. C.	21	Skit
		21	Skit
Aug. 10	Glens Falls (N. Y.) Club.	12	Lark
		6	Killoleet
		10	Onion
		12	Lark
Aug. 10	Wakefield (R. I.) Y. C.	9½	Richard Trimble
Aug. 11	Boothbay Harbor (Me.) Y. C.	12	Elenor
		12	Mink
		6	Kiddo
Aug. 11	Columbia Y. C. of Chicago (Ill.)	20	Margureite
		20	Swasticka
		20	Gloria
		20	Doze
Aug. 11	Motor Boat Club, Buffalo, N. Y.	10	North Sea
Aug. 11	Motor B. C. of Ithaca (N. Y.)	7½	Wanda
Aug. 12	Glens Falls (N. Y.) Y. C.	6	Koskomenos
			Osprey
			Calypso
			Melitta
Aug. 13	Buffalo (N. Y.) L. C.	15	Niagara II
		10	Bug
		5	Elfiolo
Aug. 13	Colonial Y. C., New York City.	16	Helen
		16	Adel
		20	Marvel
Aug. 13	Delaware River B. C.	16	Theresse
		16	Adele
			Eros
Aug. 13	Duluth (Minn.) B. C.	10	Mirest
Aug. 13	Lake Hopatcong Y. C., L. H. Landing, N. J.	20	Red Raven
		10	Pegasus
		5	Neptune
Aug. 13	Memphis (Tenn.) M. B. C.	28	Dan Patch
Aug. 13	Moosehead Lake (Me.) Y. C.		White Arrow II
Aug. 13	Quincy (Mass.) Y. C.	5	Red Wing
Aug. 13	Sea Isle City (N. J.) Y. & M. C.	9	Sue
		9	Daneva
		11	Julia II
Aug. 13	Spring Lake (Mich.) M. B. C.	6¼	Patrice
		6½	Alice
		6½	Violet
Aug. 13	Tappan Zee Y. C., Grandview-on-Hudson, N. Y.	10	Sea Robin
		10	Comet
Aug. 13	Taunton (Mass.) Y. C.	3⅓	Alice Louise
		3⅓	Hustler
Aug. 13	Wakefield (R. I.) Y. C.	9½	E. E. Pierce
Aug. 13	Wilmington Y. C.	13	Alfred II
Aug. 14	Cleveland (Ohio) P. B. C.	3	Scout
		6	Esterella
		12	Traveler
Aug. 14	Lakewood Y. C., Cleveland, O.	2½	Firecracker
		5	Searuss
		10	Beatrice B
Aug. 14	McHenry (Ill.) Power B. C.	6½	Jewel C
		6½	Mary Magdalene
Aug. 14	Pewaukee Lake (Wis.) Y. C.	5.19	Big Chief
Aug. 14	Yacht Racing Assn., Jamaica Bay, L. I.	10	Eckford
		10	Molly O
		10	Vixen
		10	Antoinette
Aug. 15	Lake Whatcom M. C., Belingham, Wash.	1½	Isabelle
Aug. 16	Barrington (R. I.) Y. C.	18	Wattana
		18	Yankee
Aug. 16	Coos Bay M. B. C., No. Bend, Ore.	5	Auto
		10	Dalphin
Aug. 17	Coos Bay M. B. C., No. Bend, Ore.	20	Pacer
		10	Auto
		10	Vega
		16	Rambler
		5	Miac II } tie
			Alice H }
Aug. 17	Ocean City (N. J.) Y. C.	12	Pasadena
Aug. 18	Cranberry Lake (N. Y.) M. B. C.	6	Sis
		6	George
		4	Alto
		4	Krog
		6	Comet
Aug. 18	Glens Falls (N. Y.) Club.		Whip O Will
			Red Wing
			Lark
			Dixie
Aug. 18	Motor B. C. of Ithaca (N. Y.)	7½	Ogarita
Aug. 19	Ketchikan (Alaska) M. B. C.	618	Limit
Aug. 19	Manhasset Bay Y. C., Pt. Washington, L. I.	21	Edith
Aug. 20	Buffalo (N. Y.) Y. C.	50	La Turda
Aug. 20	Camden (N. J.) M. B. C.		Kid
			Rambler
			Turtle
Aug. 20	Cobbossecontee Y. C., Manchester, Me.	5	Atosis
		5	Atosis
		5	Gee Wiz III
Aug. 20	Colonial Y. C., New York City.	16	Virginia
		16	Pyxie
Aug. 20	Crescent Y. C., Watertown, N. Y.	16	Gladfly
Aug. 20	Duluth (Minn.) B. C.	20	Dantremount, Jr.
Aug. 20	Louisville (Ky.) M. B. C.	15	Eclipse
			Little Captain
			Kennyamore
Aug. 20	Moosehead Lake (Me.) Y. C.		
Aug. 20	New England E. & B. Mfgs. Assn.	11¼	Redskin
		11¼	Redskin
		11¼	Chum
		7¼	Mascot
		7¼	E. M.
		7¼	Jewel
		7¼	Avia
			Peggy
Aug. 20	Ocean City (N. J.) Y. C.	5	Eagle
Aug. 20	Sachem's Head (Conn.) Y. C.	9	Lou-Ed
Aug. 20	Sea Isle City (N. J.) Y. & M. C.	9	Daneva
		11	Mary C
Aug. 20	Stone Harbor (N. J.) Y. C.	10k	Albatross
		10k	Snip
		10k	Winning's Pup
Aug. 20	Walloon Lake (Mich.) Y. C.	3	Oklahoma
		3	Hoosier
		3	Lizzie
		3	Firefly
		3	Adelaide
Aug. 20	Wilmington (Del.) Y. C.	6	Fortuna
Aug. 21	Cleveland (Ohio) P. B. C.	12	Aero II
Aug. 21	Erie Basin Y. C., Brooklyn, N. Y.	11	My Girl II
		11	Agnes B
		11	Myrtle
Aug. 21	Hammond (Ind.) M. B. C.	10	Beaula
Aug. 21	McHenry (Ill.) Power B. C.	6½	Jewel C
Aug. 21	Pewaukee Lake (Wis.) Y. C.	5.19	Big Chief
Aug. 22	Duluth (Minn.) M. B. C.	20	Cd. Antremont
Aug. 25	Motor B. C. of Ithaca (N. Y.)	7½	Keoa
Aug. 26	Clayton (N. Y.) Y. C.	21	Duquesne I
		21	Guess
Aug. 27	Buffalo (N. Y.) L. C.	5	Nokomis
		10	H-S
		¼	Viola
Aug. 27	Colonial Y. C., New York City.	16	Virginia
		16	Lida
		16	Retta D
Aug. 27	Colonial Y. C., New York City.		Lida
			Scotland
			Marvel
			Virginia
			Dabby
Aug. 27	Jubilee Y. C., Beverly, Mass.		Ruth W.
Aug. 27	Ocean City (N. J.) Y. C.		
Aug. 27	Ohio River Launch C., Cincinnati, Ohio	8½	Meddler
		16⅔	Little Captain
		25	Idlewild III
Aug. 27	Rowayton (Conn.) Y. C.		Low
Aug. 27	Royal Hamilton (Ont., Can.) Y. C.	15	Mavis
Aug. 27	St. John (N. B.) B. C.	16	Skiddoo
		5	Byron C
		5	Essex
Aug. 27	Spring Lake (Mich.) M. B. C.	6½	Easy Life III
		6½	Patrica II
		6½	Ark
		6½	Berenice
Aug. 27	Stone Harbor (N. J.) Y. C.	10k	Helen
		10k	Snip
		10k	Winning's Pup
Aug. 27	Taunton (Mass.) Y. C.	3⅓	Secret
Aug. 27	Wilmington (Del.) Y. C.	6	Wifica
Aug. 28	Bergen Beach (L. I.) Y. C.	10	Onward
		10	Marie Louise
		10	Vixen
Aug. 28	Cape May (N. J.) Y. C.	10	Pasadena
Aug. 28	Lakewood Y. C., Cleveland, Ohio.	5	Dreamer, Jr.
		10	Alice M
Aug. 28	McHenry (Ill.) Power B. C.	6½	Eilsen
		6½	Joseph, Jr.
Aug. 28	Moosehead Lake (Me.) Y. C.		Nee Bana

Date.	Club and Address.	Distance (Miles).	Winner.
Aug. 28	Robbins Reef Y. C., Bayonne, N. J.	12	Buster D
		12	Fluke
		12	Julia
Aug. 28	Yacht Racing Assn., Jamaica Bay, L. I.	10	M. Louise
		10	Vixen
		10	Onward
Aug. 29	Astoria (Ore.) M. B. C.	5	Happy Heinie
		5	Wolf II
		5	Sylph
		5	S. L. Bartlett
Aug. 30 & 31	Western P. B. Assn., Peoria, Ill.	5	Comet
		5	Emerson
		5	Emerson
		5	Emerson
Sept. 2	Spring Lake (Mich.) M. B. C.	13	Ah-Ha
Sept. 3	Barnegat (N. J.) Y. Racing Assn.	10	Broadbill
		20	Mycetma
		20	Elektra
		10	Little Quakress
Sept. 3	Bell Harbor (L. I.) Y. C.	11	Ariel
Sept. 3	Buffalo (N. Y.) L. C.	10	Snip
		10	Niagara II
Sept. 3	Byram River Y. C., Pt. Chester, N. Y.	20	Lydia II
Sept. 3	Cape May (N. J.) Y. C.	10	Idaho
		7½	Budd
		5	Sue
		10	Slick
		10	Kathryn
		10	Vanish
		10	Daneva
Sept. 3	Cleveland (Ohio) Y. C.	21	Red Devil
		6	Buffalo
Sept. 3	Colonial Y. C., New York City.	12	Pyxie
		12	Mory
		12	Snap Shot
		12	Irma G
		12	Ruth V
Sept. 3	Duluth (Minn.) B. C.	5	Sigma
Sept. 3	Lake Hopatcong Y. C., L. H. Landing, N. J.	25	Red Haven
Sept. 3	Larchmont (N. Y.) Y. C.	40	Edmee
		40	Blue Peter V
Sept. 3	Motor Boat Club, Buffalo, N. Y.	35	Dixie II
Sept. 3	Spring Lake (Mich.) M. B. C.	13	Edna
		6½	Patrice
		6½	Dorothea
		6½	Toquet
Sept. 3	Taunton (Mass.) Y. C.	25	Fulmar
Sept. 3	White Bear Y. C., St. Paul, Minn.	10	Wawa
		10	Mary B
Sept. 3	Wilmington (Del.) Y. C.	29	Virginia
Sept. 4	Apponaquet Club		Dark Secret
Sept. 4	Belle Harbor (L. I.) Y. C.	7	Lee
Sept. 4	Buffalo (N. Y.) L. C.	5	Quest
		5	Dragon
		30	Oidono
Sept. 4	C. L. U. of Erie, Pa.	4	Falk
Sept. 4	Cleveland (Ohio) P. B. C.	3	Evelen
		6	Esterella
		6	Phyliss
		12	Traveller
Sept. 4	Haverhill (Mass.) Central Labor Union	12	H. Y. C.
Sept. 4	Louisville (Ky.) M. B. C.	2	Golbric
		5	Vet
		10	Comet
		15	Little Captain
Sept. 4	McHenry (Ill.) Power B. C.	6½	Thistle
Sept. 4	Portage Lake Club.	12	Zillah
Sept. 5	Buckeye Lake Y. C., Columbus & Newark, Ohio	3	Avenell III
		3	Eibserf
Sept. 5	Buffalo (N. Y.) L. C.	10	Niagara II
		30	Oidono
		5	Arab II
		5	Quest
Sept. 5	Byram River Y. C., Port Chester, N. Y.	10	Esther B
Sept. 5	Duluth (Minn.) B. C.	6	Mirest
Sept. 5	Hudson River Y. Rac. Assn.	20	Gunfire II
		20	Artful
		10	Foxy Quiller
		10	Grace
		10	Lida M
		10	Isabella
		5	Dixie III
		10	Gunfire II
		20	Elmer L
Sept. 5	Huguenot Y. C., New Rochelle, N. Y.	20	Marilene
Sept. 5	Lake Hopatcong Y. C., L. H. Landing, N. J.	25	Peter Pan III
Sept. 5	McHenry (Ill.) Power B. C.	6½	B & B
Sept. 5	Pewaukee Lake (Wis.) Y. C.	5.19	Clara
Sept. 5	Sea Isle City (N. J.) Y. & M. C.	7	Mary
		11	Julia II
		7	Daneva
			Mary C II
Sept. 5	Seneca Falls (N. Y.) Y. C.	12	Perhaps
Sept. 5	Silver Lake M. B. C., Spring Lake, Mich.	13	Ah-Ha
Sept. 5	South Shore Y. C., Freeport, N. Y.	12	Roxie
		12	Hoteloquit
		18	Swift
		30	Senator
Sept. 5	Stone Harbor (N. J.) Y. C.	10k	Albatross
		10k	Dorence
		10k	Vanish
		10k	Caroline
		10k	Maybelle
		10k	Anna E
Sept. 5	Taunton (Mass.) Y. C.	22	Idlehour
Sept. 5	Waucoma Y. C., New Haven, Conn.	3	Dagny
		4	Lulu B
		15	Comet
Sept. 6	Island City B. Assn., Rock Island, Ill.	5	Scamp III
		10	Mallard
		5	Richard B
Sept. 10	Buffalo (N. Y.) L. C.	25	Intruder
Sept. 10	Camden (N. J.) M. B. C.		Rambler
Sept. 10	Cleveland (Ohio) Y. C.	6	Rae
Sept. 10	Duluth (Minn.) B. C.	20	Dautermount, Jr.
Sept. 10	Huguenot Y. C., New Rochelle, N. Y.	10	Irene
Sept. 10	Middletown (Conn.) Y. C.	8	Sadie
Sept. 10	Wakefield (R. I.) Y. C.	4½	Fred Baker, owner
Sept. 10	Wilmington (Del.) Y. C.	6	Fortuna
Sept. 11	Hammond (Ind.) M. B. C.	15	Perfex
Sept. 11	Lakewood Y. C., Cleveland, O.	5	Heatherbell
		10	Beatrice B
Sept. 11	McHenry (Ill.) Power B. C.	6½	Arthur
Sept. 17	Cleveland (Ohio) Y. C.	21	Loew-Victor
		6	Rae
Sept. 17	Colonial Y. C., New York City.	16	Virginia
		16	Canestro
		16	Tycny
Sept. 17	Delaware River Club, Wilmington, Del.	6	Theresa
		2	Patience
Sept. 17	Philadelphia Y. C., Essington, Pa.	50	Isabella II
Sept. 17	Taunton (Mass.) Y. C.	6⅔	Gertrude
		6⅔	Hustler
Sept. 17	Toronto (Can.) M. B. C.	10	Seldomin
		10	Shamrock
		10	Lady Grace
Sept. 17	Yachtmen's Club, Philadelphia, Pa.	50	Isabella II
		50	Pasadena
Sept. 18	City Island Yacht Club.	10	Clip
Sept. 18	Erie Basin Y. C., Brooklyn, N. Y.	35	Laurel
Sept. 18	Excelsior Y. C., Brooklyn, N. Y.	10	Starling
		10	Dorothy B
Sept. 18	Yacht Racing Assn. of New York Bay	37	Excelsior
		10	Daisy
		10	Starling
		37	Laurel
Sept. 22	Saginaw (Mich.) B. C.	5	Wanderer
Sept. 24	Cleveland (Ohio) Y. C.	21	Loew-Victor
Sept. 24	Woods Hole (Mass.) Y. C.	4	Go-By
Sept. 25	Canarsie Yacht Club.	10	Helena
Sept. 25	Lakewood Y. C., Cleveland, O.	5	Heatherbell
		10	Alice M
Sept. 25	New York Motor B. C., New York City	40	Imp
		40	Monroe
Oct. 1	Camden (N. J.) M. B. C.		Sand Burr
Oct. 1	Jackson Park Y. C., Chicago, Ill.		Finch
Oct. 1	Norristown (Pa.) Motor B. C.	2	Sequoyah
		4	"No Name"
		10	Comet
		17	Feddy R
Oct. 2	Corinthian Y. C., San Francisco, Cal.	7½	Glory
		7½	Bonnie Doon
		7½	Teal
Oct. 9	Lakewood Y. C., Cleveland, Ohio.	2½	Louise, Jr.
Oct. 9	Sacramento (Cal.) B. C.	114	Amethyst
Oct. 15	Cuyahoga Co. Centennial Regatta, Cleveland, Ohio	16	Loew-Victor
		12	Speejacks
		8	Gertrude A

The New A. P. B. A. Rules.

Why and in What Particulars the Rating Rules of This Organization Have Been Changed. How Weighing the Boats Hereafter Will Minimize the Possibility of Error.

An Interview with Henry J. Gielow, Official Measurer.

"IN preparing the measurement rules for the American Power Boat Association," said Mr. Henry J. Gielow, N. A. official measurer of that body, in an interview kindly accorded the writer, "my aim has always been to so construct them that, while resting on fundamentally scientific principles, they shall be as simple of application as such principles will permit. The chief change introduced this year, which consists in making mandatory the weighing of power boats (the midship section factor in the rating formula being then directly derived from the displacement), is concerned with the second of these desiderata rather than the first. It in fact eliminates several possible and even likely sources of error by replacing several measurements and a complicated calculation arising out of them by one very simple and definite measurement, viz., the weight, and a simple multiplication."

"In order, however, to get the true perspective of this change," continued Mr. Gielow, "it is necessary to go back a little. When, in 1903, the formula, Speed Rating equals the cube root of the square root of the load waterline multiplied by the horse power and divided by the area of the midship section, was first proposed by myself and adopted by the Association, boats were driven at speeds normal to their form. The automobile racing boat had not yet put in an appearance and all that was comtemplated in providing measurement rules was to enable yachtsmen who had cruising boats to get together in different classes and indulge in the friendly sport of racing, "catch as catch can." Now, when a boat has the run normal to its speed, the latter not being excessive for the displacement, it is found that the fore and aft position of the midship section varies from about 52 to 58 per cent. of the load waterline length, measured from its forward end, or a mean of 55 per cent. Taking into consideration further that a variation of 2 per cent. in either direction would make no appreciable difference one way or the other, it was decided to take 55 per cent. of the load waterline length, measured from the forward end, as the midship section of a power boat.

"The practical effect of this assumption was to enable all the measurements necessary for calculating a boat's rating to be made without removing the boat from the water. The load waterline length was determined by dropping over the bow and stern two plumb lines at a known distance apart and deducting from this quantity the measured distances between the plumb lines and the extremities of the load waterline. The area of the midship section was derived by an empirical rule from two actual measurements. It had been demonstrated by the analysis of a number of designs that by dividing the beam at the load waterline into five equal parts, measuring the vertical distance from the water surface down to the under side of the boat's planking, one-fifth of the distance from either end, and multiplying it by the beam at the load waterline, this would give the actual midship section within one or two per cent., whether the midship section be a box or almost V-shaped. The measurement was actually made from the deck by applying to the side of the boat a graduated pole fitted with two graduated arms sliding in the traverse midship plane, taken as located at a distance of 55 per cent. of the waterline length from its forward end.

"During the season of 1905 it began to be realized that in the fast automobile racing boats, which were being built in larger and larger numbers, the position of the midship section tended to be considerably farther forward than in the average cruiser. This was a necessary consequence of the powerful character of the engines with which they were provided for while brute force will thrust the bows of a boat into the water ahead of it, the convergence of the stream line flow under the stern depends on the action of gravitation, and this means in practice that a fast boat calls for a longer run. In view of the fact that these boats would be out of the water from time to time it was thought best to take the actual midship section wherever found, the balance of the formula remaining unchanged.

"At the end of the 1906 season many of the yachtsmen expressed their desire that automobile boats should be weighed, particularly in the races for the Gold challenge cup, and, in order to provide for this contingency, I prepared a paragraph which was added to the rules. It was based upon the fact that the prismatic coefficient of most racing boats is not far from 55 per cent. and this was borne out by actual tests made the following summer, when the boats were weighed and the weight reduced to an equivalent midship section, as provided in the formula incorporated in the rules, and then the actual measurement of the midship section taken. It was found that the two agreed to within one or two per cent. and proved conclusively that the formula had been prepared on fundamentally sound and correct premises. This and subsequent corroboration of a similar character taken in conjunction with the fact of a growing preference among yachtsmen for the weight method owing to its directness made us feel justified in making it mandatory for the coming season.

"The principal objection to ascertaining the midship section *where found* is that unless the services of an engineer or professional naval architect are requisitioned considerable error is possible.

To find the weight of a boat on the other hand is a very simple matter. All that is required is a couple of slings placed under the bow and stern, a couple of multiple blocks and tackles to raise her, and a couple of beam scales of any of the standard types from which the two ends of the boat can be conveniently suspended. Then the sum of the two scale readings is the weight required, for it obviously makes no difference how the total weight of the boat is divided up between its two supports. *To obtain the area of the midship section the weight of the boat in pounds is divided by 52.2 and multiplied by the prismatic coefficient, taken as 55, and by the load waterline length.*

"So far as the extent of the probable error which is liable to exist in this as in any other method of measurement based on an approximation it is certainly not greater and is probably much less than the error involved in assuming that the mean effective pressure in the cylinder of a marine engine is 66 pounds or that the normal number of revolutions per minute may be taken at 1000, both of which assumptions are implicitly involved in taking the horse power for rating purposes as one-half the piston area multiplied by the number of cylinders. Moreover as the midship area, as it appears in the rating formula, represents both the wetted surface and the displacement, there is a certain propriety in calculating it directly from the latter of these two quantities, and that one the principal of the co-ordinates or designating factors by which boats are classified in practice. Lastly when a boat is weighed it is weighed, and short of a deliberate intention to mislead there is no room for two opinions as to the fairness or accuracy of the manner in which the weighing is done, or of the result arrived at.

"Another matter which has engaged the attention of the American Power Boat Association this year and which has led them further to modify the rules is the protection of the interests of the man who wishes to engage incidentally in the sport of racing but who wants a boat which is for general use and not a racer. Owners of this kind expect a boat to last at least two or three years and it is not fair to put them in competition with the owner who can afford to build a new boat every year. In other words the winning of races should not be altogether a matter of the longest pocketbook. Accordingly in 1911 three new limited classes will be recognized in which the maximum length, the minimum weight and the maximum power will be specified. It is hoped that this departure will encourage the building of roomy, wholesome, comfortable, seaworthy boats which will not be immediately outbuilt. The designations and criteria of the new classes are:

X. L. Maximum Length 32′.
Minimum Weight 2900 lbs.
Maximum Cylinder Volume 570 cub.ins.
Y. L. Maximum Length 26′.
Minimum Weight 2100 lbs.
Maximum Cylinder Volume 385 cub. ins.
X. L. Maximum Length 21′.
Minimum Weight 1600.
Maximum Cylinder Volume 255 cub. ins.

"I should like," said Mr. Gielow in conclusion, in this connection, "to correct a wrong impression relative to the functions of a measurement rule which is unfortunately only too widely spread. A common idea seems to be that if any number of boats are measured and rated under a rule their correct times should be all exactly the same when the race is finished. If the rule fails to accomplish this it is no good in their estimation. Now, as a matter of fact this is exactly what the rule will not do, for the rule assumes an ideal or perfect boat, and as such a craft has not yet been produced, it is clear that the boat with the poorest model, motor, propeller, etc., must inevitably make the poorest showing. We are all striving for something higher and better and *any rule that places inferiority on the same level with superiority is wrong in principle and practice.* To show how accurate our rating rule is for the purpose for which it was constructed it may be mentioned that in one of the Gold Cup races on the St. Lawrence five out of the seven starters on correct time finished the thirty mile course within two minutes of each other.

"Another way of looking at the matter is to remember how a rating rule is put together in the first instance. The fundamental assumption which underlies all results as they arise in practice is that the rate of output of a marine motor is proportional at all ordinary speeds to the cube of the knots. Now, as a matter of fact, every vessel, whether of the moderate or high power type, instead of having a resistance curve which is a curve of cubes or a true line has a curve with alternately slightly higher and slightly lower points. But if a number of curves are drawn over each other representing boats, say, from 15 to 100 feet in length, advancing by steps, say, of five feet, there will be a series of wavy curves through which a mean curve may be drawn that will fairly represent the average and this curve will be practically a curve of cubes. In assigning to each boat a constant by which it can be referred to this curve of cubes, and this is all that rating amounts to, the implicit standard is the ideal boat of which we have spoken and of which the resistance curve would be the mean of the actual resistance curves as actually plotted."

Talks With Our Naval Architects.

Carlton Wilby.

CARLTON WILBY received his early training as a naval architect with B. B. Crowninshield, of Boston; later being associated with the Bath Iron Works, the Detroit Shipbuilding Company, and the Great Lakes Engineering Works. During his connection with these concerns he gained an intimate knowledge of practical working conditions relating to the design of steel constructed, commercial vessels, as well as the smaller class of sail and motor pleasure craft.

For the past four years Mr. Wilby has been in business for himself, with offices in Detroit, and during this time has designed a great many successful yachts, as well as a number of commercial vessels, one of the most interesting of these being the U. S. Mail Boat C. F. Bielman, Jr. This boat delivers the mail to steamers passing up and down the Detroit River, often handling as much as 3,000 pieces of mail in one day.

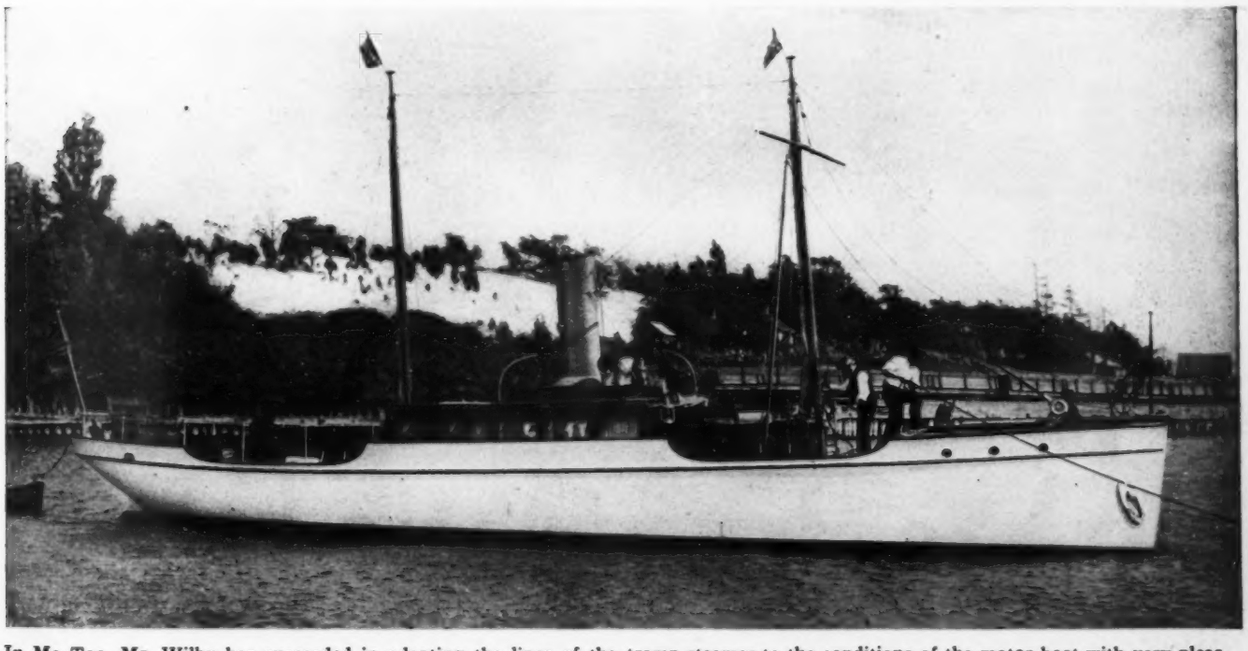
During the past year or two Mr. Wilby has devoted considerable attention to Standard Designs for motor boats under 50 feet in length. In speaking of this branch of his business, he said: "My experience has shown that the average owner of a motor boat under 40 or 50 feet in length has been rather 'up against it' to get a really good design. It is out of the question, of course, to suppose that a naval architect can afford to prepare a special design for a small boat at the same rate, or percentage of the cost, as in the case of a large boat. The same calculations and plans are required, whether the boat is large or small, and consequently the charge for a design must be much greater, in proportion, for the latter than for the former. This greater proportional cost has prevented many small boat owners from building to good designs, and is responsible for the numerous fearful and wonderful craft to be seen among the 'mosquito' fleet."

Carlton Wilby, Naval Architect.

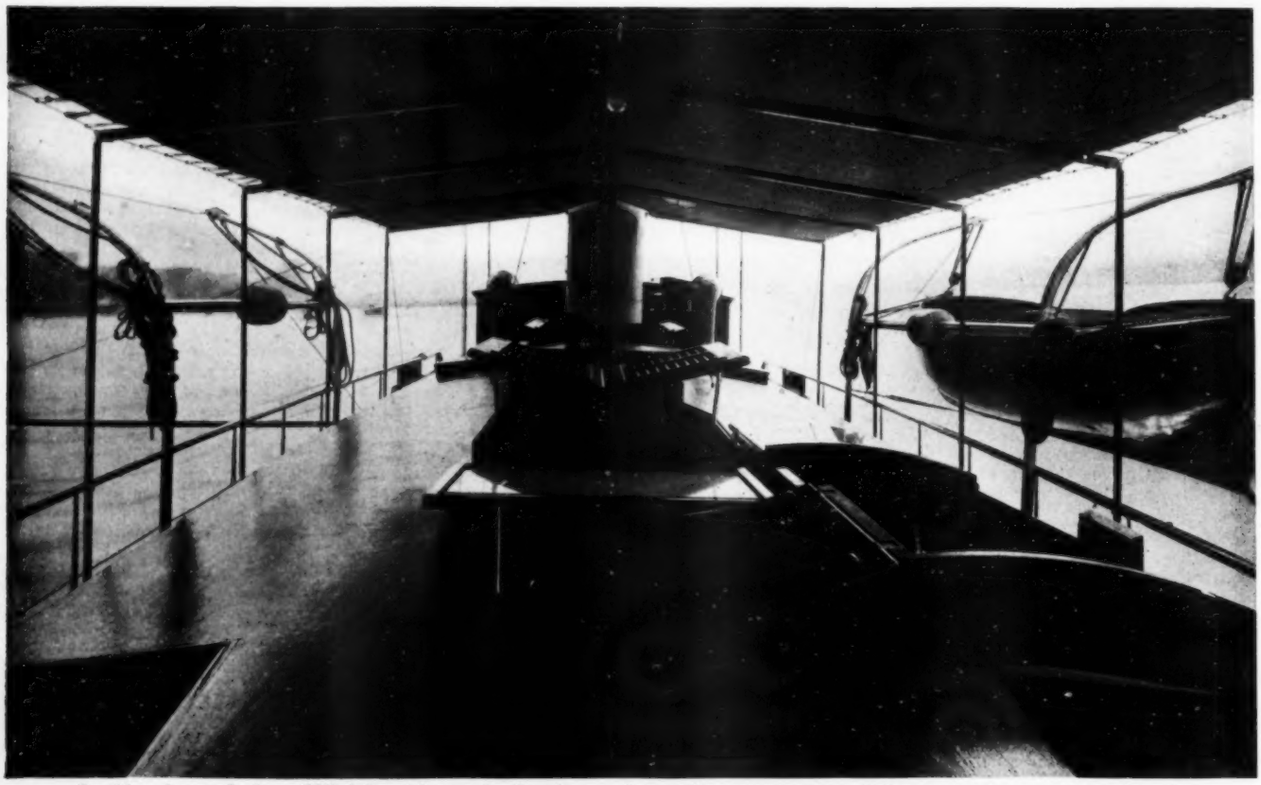
In discussing the modern tendency in power cruser design, Mr. Wilby decried the lack of sheer so noticeable in many recent productions: "There is hardly anything," said he, 'which makes or mars the appearance of a boat, in the eye of a sailor, as much as the sheer line. Unless this line is 'eye-sweet,' it is impossible to produce a craft of graceful appearance. A reasonably straight sheer line on a speed boat is all right; it gives a racy appearance, cuts down weight, and is entirely consistent with the use to which the boat is put; namely, smooth water work. But to attempt to carry this idea into cruiser design is inconsistent, and ridiculous. The result is a tubby, wall-sided, craft, with a 'by-the-head' look that is anything but seaworthy."

Mr. Wilby has had considerable experience in handling motor boat races and is responsible for the measurement rule for handicapping which was adopted some time ago by the Interlake Yachting Association and the Western Power Boat Association. In this connection he said: "I do not believe the racing question will be satisfactorily settled until restricted classes are formed in which boats will race on even terms, without time allowance. To get satisfactory racing, the results must be so close that there is a chance for every boat to win.

"It would be well, of course, to retain the racing classes which we have at present, restricted only in the matter of over-all length; but in addition I would like to see classes intended to develop a fast runabout, with maximum limits on length and cylinder volume, and minimum limits on beam and displacement. These limits should be so fixed as to produce a comfortable and strong boat with a fair degree of speed. I believe something along these lines would mean much at this time for the development of motor boating.



In Me Too, Mr. Wilby has succeeded in adapting the lines of the tramp steamer to the conditions of the motor boat with very pleasing results.



Looking forward along Milwin's cabin trunk, showing an interesting arrangement of the companionway to starboard.

The cabin and staterooms are finished in mahogany and white enamel, and are well lighted by skylights and windows in the cabin trunk. Note the use of tapestry on the walls.

Milwin is exceptionally pleasing in appearance and maintains a speed of 12½ knots.

Milwin--A New 83-Footer.

AN interesting boat and one of the latest of the past season is Milwin, an 83-footer designed by ,Messrs. Swasey Raymond and Page for Mr. Edwin G. Burns of New York.

As will be seen by the photograph above, she is of the raised deck type with a low sunken house forward and cabin trunk extending aft. She has the canoe bow and stern with considerable freeboard, moderate deadrise and easy bilges and with her long forward deck, low broad stack and signal mast makes an exceptionally trim appearance.

The general dimensions of the boat are 83 feet over all, 13 ft. 6 in. beam and 4 ft. extreme draft. She is equipped with a 100 h. p. six-cylinder Standard engine which gives her a speed of 12½ knots.

Below decks the arrangement is as follows: There is a forecastle forward with lavatory and sleeping arrangements for five men, and just aft of this there is an athwartship galley extending the full width of the boat. Just aft of this is the dining room, which occupies the deck house and the floor of which is somewhat above that of the galley. From the after end of this room, the companionway leads up on the starboard side to the bridge deck, which occupies the space between the dining room and the cabin trunk. Below the bridge deck and beneath the forward part of the cabin trunk is the engine room which is well ventilated by four port lights and the stack.

The forecastle has accommodations for five men.

Just aft of the engine room is a bathroom, 4 ft. 10 in. fore and aft by the full width of the boat. This room contains the usual fixtures, together with ample locker space, linen drawers, etc. Aft of this and also extending the full width of the boat is the owner's stateroom, which contains a large double berth on the starboard side, and a bureau and a transom on the port side.

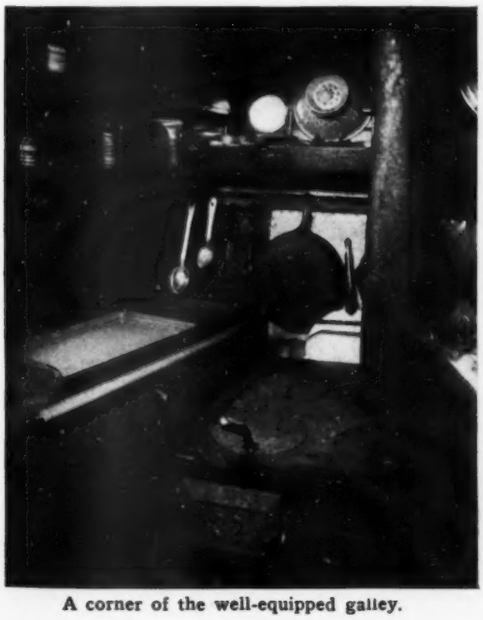
The after cabin occupies the 7 ft. aft and contains two seats besides the companionway. Beneath the companionway there is a large clothes locker and occupying a corresponding space to port is an enclosed wash room. A second stateroom occupies the space beneath the after end of the cabin trunk and contains a large berth along either side and a bureau across the after end.

An interesting feature of the interior finish is the use of tapestry on the walls, as will be seen by the interior photographs on the two following pages. The forward dining-room is done in dark mahogany and tapestry of a conventionalized leaf design. The after cabin or lobby also is finished in mahogany and tapestry and the staterooms are finished in white enamel with a similar wall covering. This tapestry idea, which was carried out on the yacht Visitor II, Cavalier and several steam yachts by the same designers, has worked out very effectively on this boat and will probably be used more extensively hereafter.

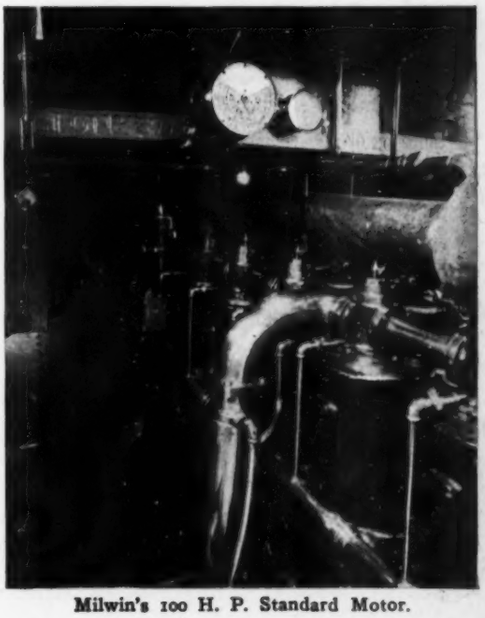
Above the bridge deck and extending aft there is an awning, making the large after-deck an ideal place to seat a large company. A light signal mast is stepped just abaft the funnel and adds materially to the appearance of the boat. Two small boats, one of them a power tender, are carried on davits, and when on a cruise these may be swung inboard to rest on chocks on the roof of the cabin trunk.

During the short time that Milwin had been in commission she has proved her self extremely seaworthy and well behaved at all times. She is an enlargement of the type of Idlesse, which was built by the same designers for Mr. Freeman last season, and whose success prompted the design of Milwin.

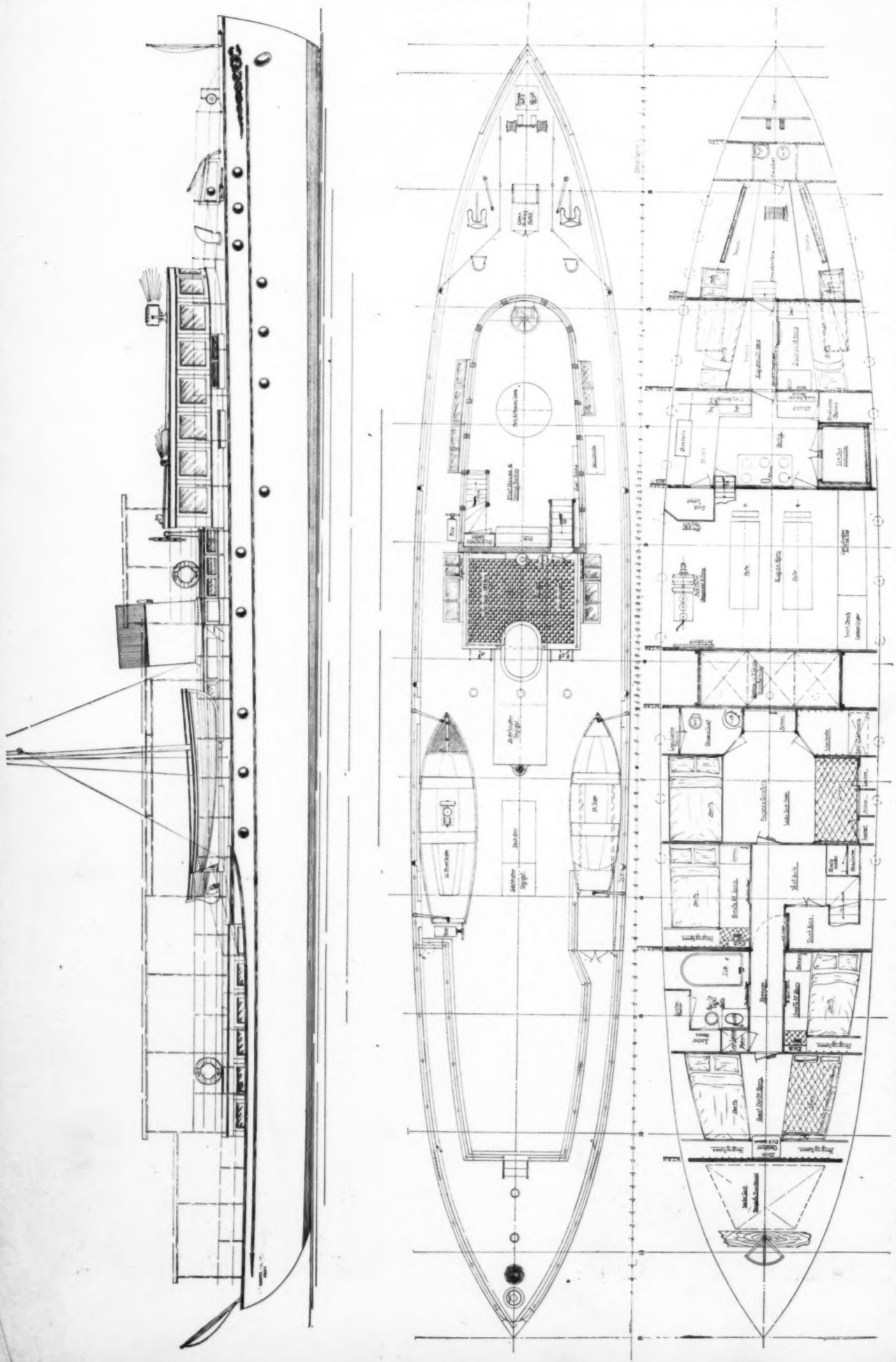
The illustrations on this and the opposite page give a good idea of the boat and show something of her beautifully finished and well equipped interior.



A corner of the well-equipped galley.



Milwin's 100 H. P. Standard Motor.



In the new design of this 98-footer by Messrs. Whittelsey & Whittelsey, of New York, the long, low appearance is obtained by sinking the floor of the deck house somewhat below that of the main deck.

Up-to-Date Practice *in* Motor Boat Design

A New 98-Footer.

THE motor yacht shown on the opposite page is being constructed for Mr. E. B. Hawkins, a well-known yachtsman, who formerly owned the "Itasca" and who has done extensive cruising in Florida, along the Atlantic Coast and Great Lakes. The design was prepared and the construction is being superintended by Whittelsey & Whittelsey, of New York, and the vessel is being built by the Hudson Yacht & Boat Company, of Nyack, N. Y.

The design shows a handsome raised-deck cruising boat, with medium sweep to the shear and with a low sunken house forward, followed by a bridge, aft of which is the funnel trunk.

The feature of the outboard appearance of this boat is the low height of the pilot house and the long sweep of the deck from the funnel aft. In fact, half of her total length of 98 feet is available deck space. The deck plan shows plenty of space forward of the pilot house for the crew. The pilot house is 20 feet long by about 9 feet wide, and there is a steering wheel arranged in the forward end of this house. At the after end is arranged a large buffet, on the starboard side of which is the exit to the deck by way of the bridge and on the port side is the stairway leading down into the galley. The bridge that follows the pilot house is of ample size and the space under this bridge is used for a deck box and for the water deck tank.

In the arrangements below deck, the owner's room is located amidship with a private wardrobe to starboard and private toilet room to port, with a bureau between. A large divan with alcoves and lockers above is to be fitted to starboard and the double berth to port. The finish of this room and all the other guest's quarters is to be of mahogany and white.

Abaft the owner's stateroom to port is a guest's stateroom with a double berth, bureau, folding wash basin, etc. To starboard is the companion way, as well as private buffet and ice box, and also a trunk room. Aft of the trunk room is another guest's stateroom with a double berth and bureau, folding wash basin, etc., and opposite this last space to port is the guest's bath room. The last space aft is given up to a double guest's stateroom, which contains a double-width berth, a double-width divan, a large chiffonier, ample hanging spaces, etc.

The gasoline tanks are located amidship and are to be of copper, with a capacity of 2,000 gallons. They are to be fitted in watertight and gas-tight compartments, with the supplies carried outside of the hull and the bottom of the compartment flushed with sea water, all according to the regular practice of the designers.

The engine room located just forward of the gasoline tanks will be large and well ventilated. The vessel is to be propelled by two 100-h.p. air reversing Standard motors and is expected to develop a speed of 15 miles per hour. A large auxiliary motor is to be fitted to port, which will be used to drive the air compressor, dynamo and bilge pump.

Just forward of the engine space is the galley, extending the full width of the boat.

Forward of the galley the captain's stateroom to starboard and the engineer's stateroom to port, and forward of these spaces the general crew's quarters.

A Light Draft 45-Footer.

THE forty-five-foot light-draft cruiser shown below was designed for Mr. James K. Clarke, of the N. Y. Y. C., by Mr. James W. Hussey, of Philadelphia, to be used as a fishing, hunting and general utility boat during the winter, in Florida, and as a fast day boat up North in the summer.

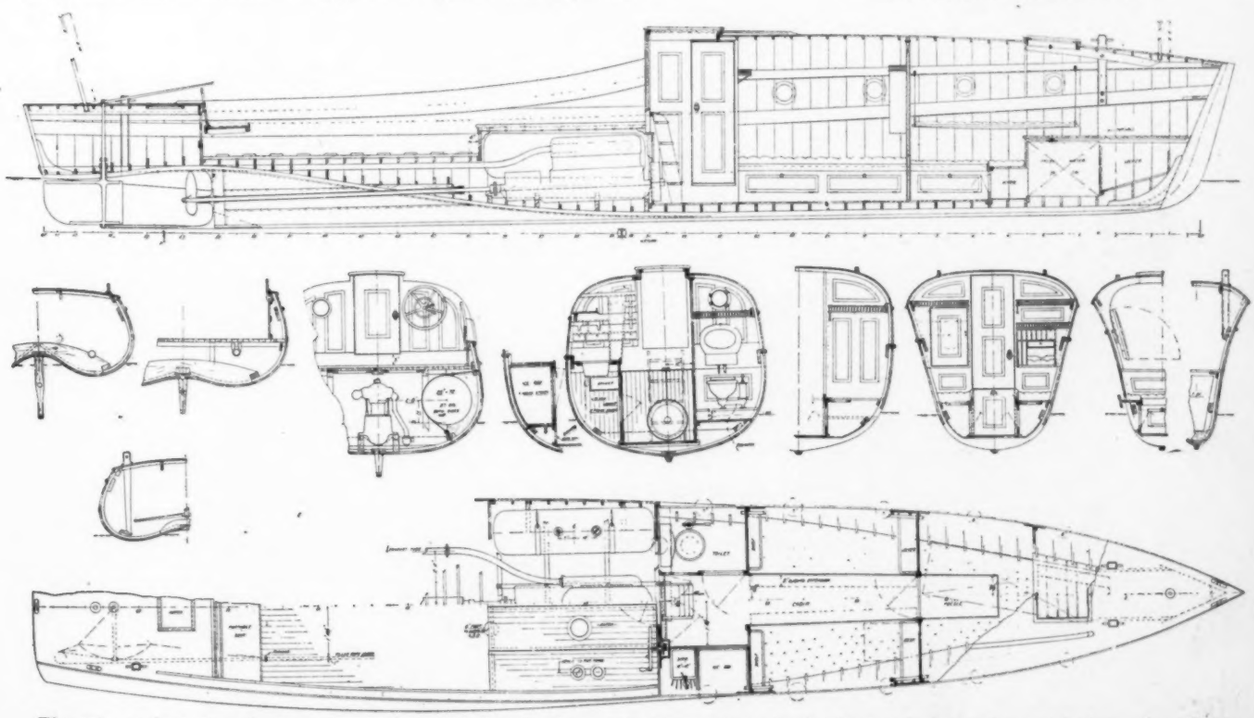
The arrangement shown speaks for itself and is an assemblage of requirements giving large cockpit space, quarters for owner, one guest, and a man, and, without excessive power, a boat fast in deep water and speedy in shallow.

The tunnel construction, several details of which are original with the designer and have been successfully tried out, reduces the draft with a protected propeller to twenty-two inches. The rudder and shoe, as well as the line shafting, are extra strong and effective in design to meet the hard knocks of shallow-water navigation.

The six-cylinder "Sterling" motor at 950 r.p.m. will give a top speed guaranteed in excess of 17 m.p.h. in deep water and 12 m.p.h. in only twenty-four inches of water. The cruising radius at 15 m.p.h. is 500 miles.

The boat will be very seaworthy and easy riding and capable of such outside work as the north and south runs demand.

She has the ample cockpit room so necessary in the day cruiser. Her deck, though crowned considerably at the sides, is left nearly flat on top to insure an easy foothold. The motor is installed beneath the raised bridge in the cockpit and withal her trim appearance and her good points should favor her as the prototype of a popular class.



The trim 45-foot, tunnel-stern day cruiser, designed by James W. Hussey, has a draft of but 22 inches and a speed of 17 miles per hour.

45-Foot Ocean Racer.

A VERY interesting forty-five-foot cruiser is shown by the accompanying plans from the office of Messrs. Bowes & Mower, of Philadelphia.

This boat is now in course of construction for a prominent Philadelphia yachtsman and, in type, is similar to the famous ocean racer Ilys, designed by Mr. Bowes for the Bermuda race in 1909. This type has proved very popular on Barnegat Bay, as it is not only well-suited to the shallow inland waters of the bay, but is a fine sea boat and able to cross the bars at the inlets and go off shore in any weather.

This new design shows an unusual amount of room below. The main features of the arrangement are the owner's stateroom and toilet room forward, and the separate galley just forward of the large after cabin. The engine is located amidships in a watertight compartment arranged with a toilet room and two berths for the crew, a good work bench and ample stowage space.

The main cabin is entered by a companion way from the after deck and has wide sofas on either side, which can be extended and made into comfortable berths at night. Back of the transoms book shelves and lockers with leaded glass doors are arranged, and on the port side at the forward end is a sideboard.

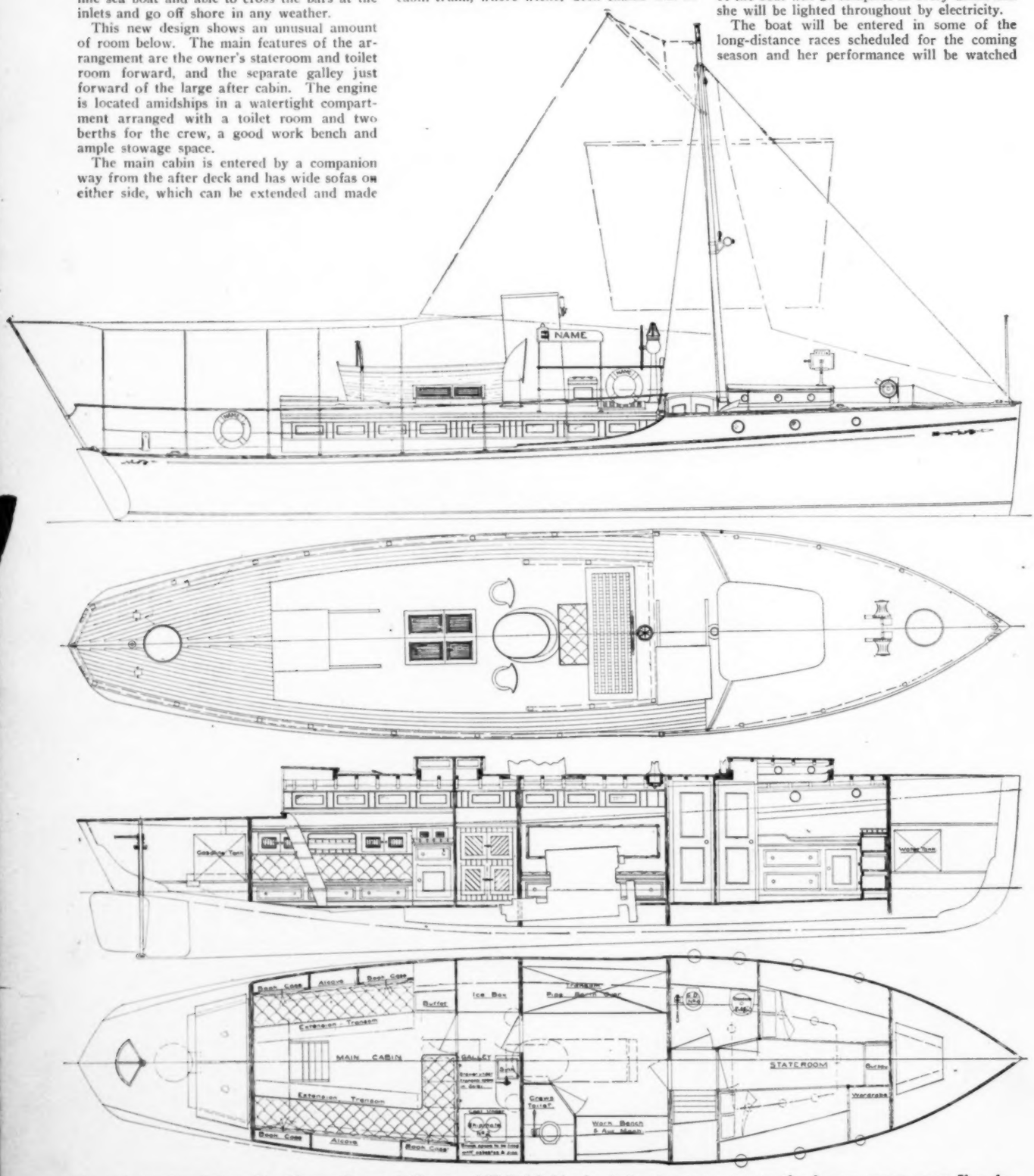
The galley will be completely equipped with ice box, unusually large, sink, lockers, and a shipmate stove with the stove pipe carried up in the funnel.

The forward companion way is on the starboard side and the steps land in a passage way from which doors open into owner's stateroom, toilet and engine room.

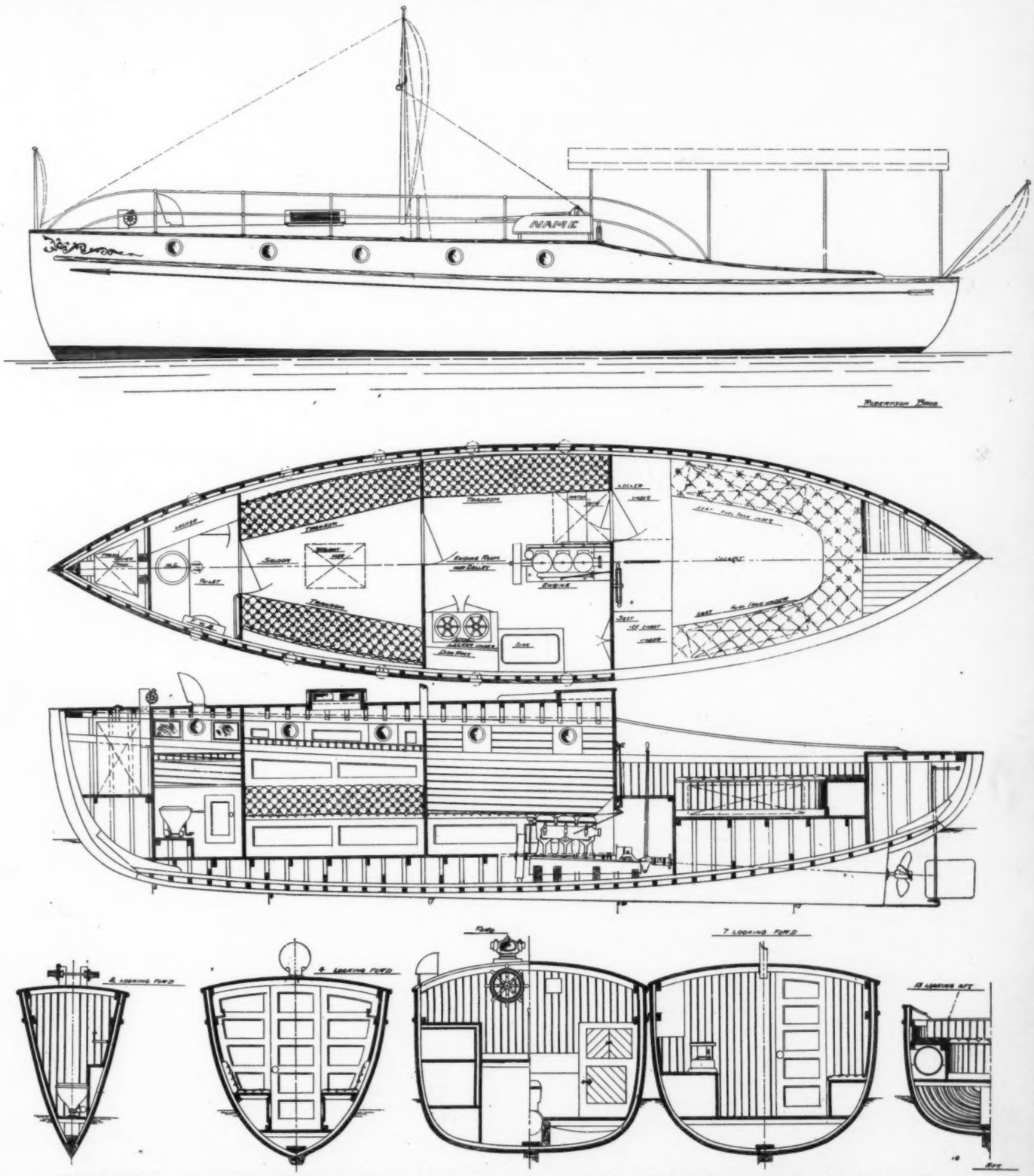
There is a flush deck ten feet long aft of the cabin trunk, where wicker deck chains will be used, and there is a passage way leading forward on either side of the house.

The mast forward of the bridge is intended for actual service, as sails will be carried, and it will be possible to handle her under sail in case of a break down. She will be equipped with a heavy-duty engine of about twenty-five horsepower, which will give her an actual cruising speed of twelve miles per hour. The gasoline will be carried in tanks under the after deck, having a capacity of over two hundred gallons, which will give a cruising radius of about six hundred miles. The equipment of the boat will be complete in every detail and she will be lighted throughout by electricity.

The boat will be entered in some of the long-distance races scheduled for the coming season and her performance will be watched



The 45-footer just designed by Messrs. Bowes & Mower, of Philadelphia, is similar in appearance to the famous ocean racer Ilys designed by Mr. Bowes in 1909.



The Robertson 32-footer has ample free board and has the bow and stern of the whale boat, but is somewhat flatter in the floor.

with interest, as she will have a low rating and is a boat that will be very easily driven.

Her dimensions are: Length over all, 45 ft. 9 in.; length waterline, 43 ft. 6 in.; breadth extreme, 10 ft.; draft extreme, 3 ft. 3 in.

She has a nearly plumb bow with considerable flare to her forward section and her stern is of the V transom type with enough rake for safety in a following sea. She has a moderate sheer, her deck plan shows very graceful curves, and withal she is a very neat little cruiser for general all-around cruising service.

Raised Deck 32-Footer.

THE design shown below is of a 32-ft. raised-deck cruiser from the board of Robertson Bros., of Hamilton, Ont. This hull is substantially built, all the frames being of white oak, planked with cypress and decked with white pine. The frames are 1¼ in. by 1¼ in. and are spaces 8 in. between centers. The planking finished is ⅞ in. in thickness.

The bow and stern are of the whaleboat type, and these, with the reasonable draft and good freeboard, should insure seaworthiness.

Her deck plan shows the full curve from stem to stern, another characteristic of the whale boat. The sections amidships are somewhat flatter in the floor than in this type of boat, but this is to keep the draft from being too great, as might have been the case had there been more deadrise.

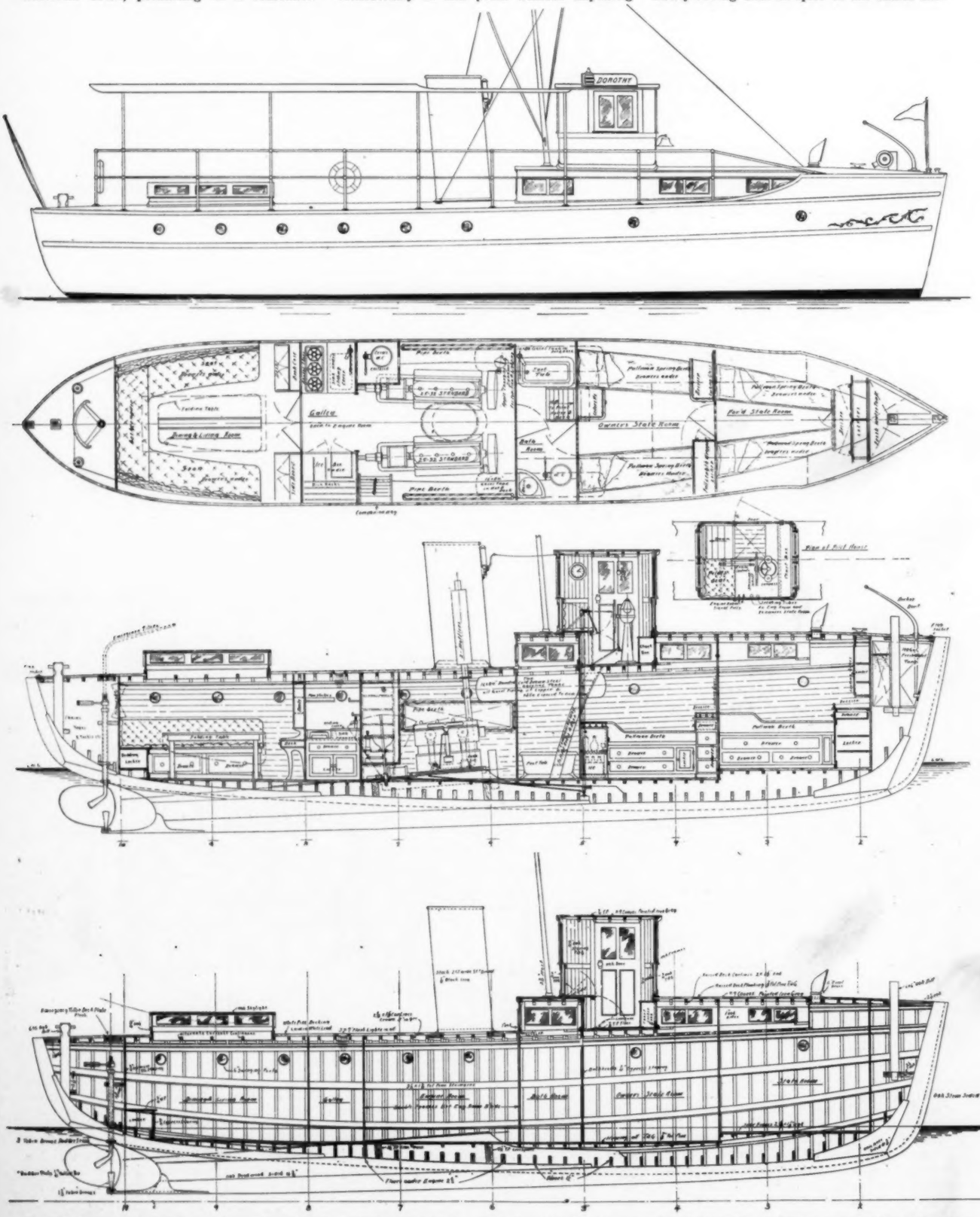
The power plant recommended is a Lowe-Victor four-cycle engine of from 25 to 40 h.p., and with this equipment the company is prepared to supply boats built to this design for $1,800.

A 50-Foot Sea-Going Cruiser.

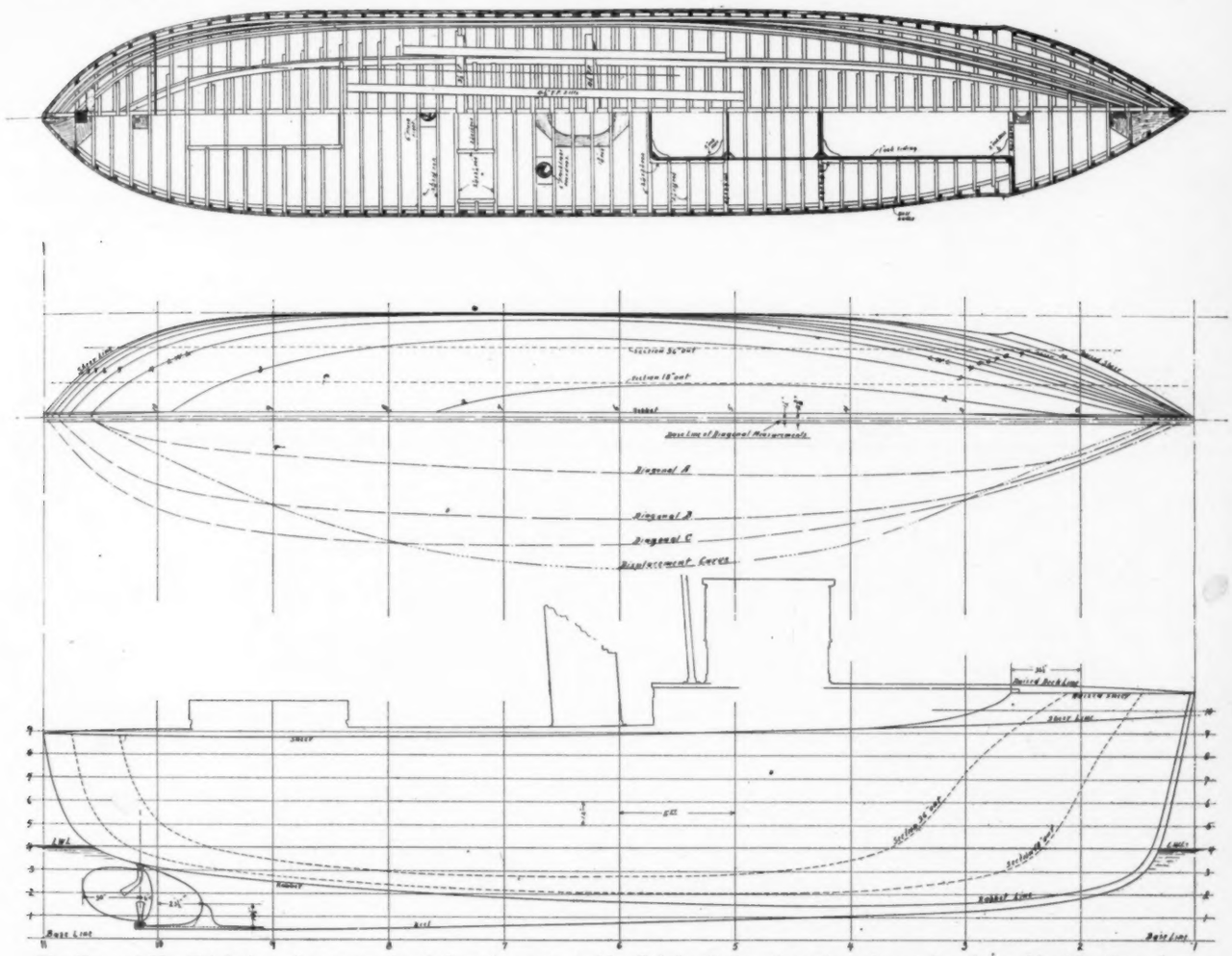
THE design which appears on this and the opposite page by Albert H. Zeigler, of the Standard Motor Construction Company, aims to produce at a reasonable first cost and cost of operation, a deep-sea cruiser which is a little faster, quite a little safer and considerably more roomy and comfortable than the average boat of its overall dimensions.

The lines, though quite fine from the waterline down, permitting of a reasonable speed, rapidly broaden out above this point and in conjunction with the U-shaped sections forward provide an appreciable increase of available space within the craft. The U-shaped sections forward also increase the displacement considerably at this point without impairing the speed. This increased displacement, it is figured, will materially reduce pitching in a heavy sea, but the sections are not extreme enough to cause any noticeable lift forward when at full speed.

Throughout the whole length of the under body there is a decided dead rise in the sections and, in conjunction with the ample draft and dead wood, should produce a moderately slowly-rolling boat in spite of the rather nar-



The 50-foot sea-going cruiser, designed by Albert H. Zeigler with her pilothouse and other interesting features, is a decided departure from the popular practice.



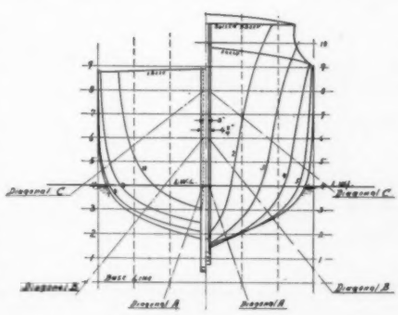
The lines of Mr. Zeigler's 50-footer are fine below the water, with slightly U-shaped sections forward and considerable flare above.

row beam. The fore foot has been cut away somewhat, which fact should contribute to easy steering and should lessen the danger to the hull when running aground or encountering floating debris.

The high freeboard and moderate flare forward should ensure a dry boat and one which will not dip under in a heavy swell. The above-water body is given sufficient rounding and overhang all around to prevent an overtaking sea at any quarter from slapping or washing aboard. The high free board has the added advantage of making the boat a stiff girder for its weight of construction, provides a drier boat in heavy weather and makes it possible to utilize practically the entire length and breadth below decks as living quarters, obviating the necessity of cutting the deck beams with a cabin trunk. Besides, this form of hull provides much more deck space than would be available otherwise. The interior was laid out with the intention of accommodating the owner and his wife, a crew of two men and four or five guests in addition.

To protect the helmsman from the wind and rain an enclosed pilot house was provided and from this point a practically unobstructed view may be had in all directions. In bad weather it is unnecessary to go on deck at all, as the forward staterooms are connected both to the pilot house and the after living room.

All controls from the engine room are carried to the pilot house and are arranged alongside the helmsman's seat. Bell pulls and speaking tubes keep him in constant communication with both the engine room and the owner's stateroom. Whistle and fog bell pulls are installed conveniently at the steering wheel and a chart box with charts mounted on rollers beneath a glass top is placed just forward of the binnacle.



The berths throughout the boat are long and wide enough to accommodate big, grown-up people, and every available nook is provided with a drawer or locker for the storage of clothing, etc. A large locker in the owner's stateroom provides full-length hanging space for coats, wraps, etc. A cellarette and bureau, besides two Pullman berths, are also installed in this compartment. Forward of this compartment there is another stateroom also provided with two berths and bureau, and just abaft the owner's stateroom is a bath room the full width of the boat, containing a small tub besides the usual fixtures. A companionway leads from the bath room to the pilot house and may be closed over by swinging doors forming a seat alongside that of the helmsman.

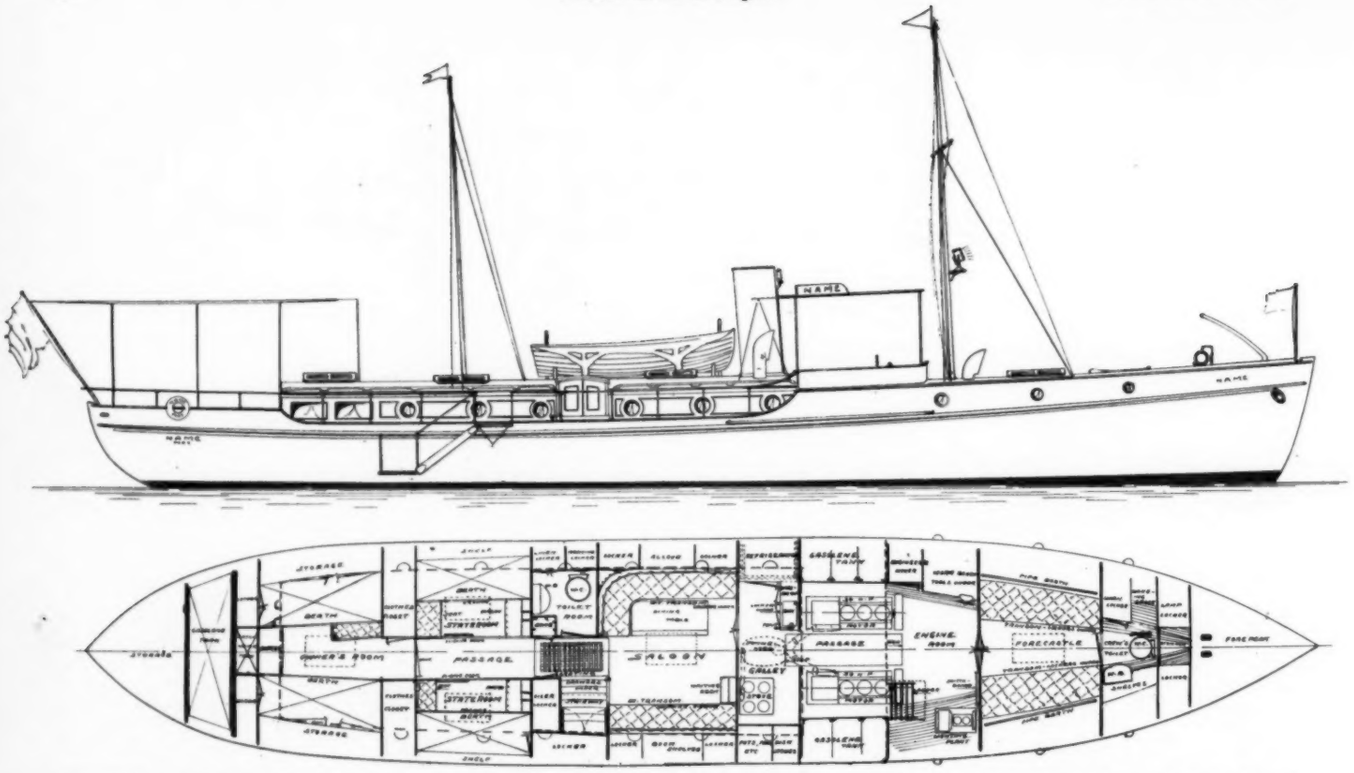
The engine room is amidships beneath the stack and contains a pair of 25-32-h.p. Standard motors driving twin screws. These develop their power at 400 r.p.m. and should propel the boat at 14½ miles. This compartment also contains two pipe berths for the crew, together with a toilet room to port and a companionway occupying the corresponding space to starboard. The fuel tanks are installed just beneath the deck at either side and and extend through the bath room and into the engine room. The galley is just abaft the engine room and contains a three-burner stove and sink on one side and an ice box with shelves above it on the other side.

The after part of the boat beneath a large skylight is devoted to a living and dining room, with seats around the sides and after end, which may be converted into berths when necessary. This compartment is provided with a large folding table amidships, a combination desk and book case to port, and a side board on the starboard side.

The two gasoline tanks before mentioned are 16 in. in diameter by 84 in. long and are provided with deck plate filling holes and gauges, also flush with the decks, indicating the amount of gasoline. As these tanks are installed well above the engines, gravity feed is obtained and small ⅛-in. vent pipes are carried from each tank to the top of the stack. The tanks have a total capacity of 142 gallons, which will allow of a full-speed run of 22 hours or 320 miles.

A stack exhaust muffler or each engine produces a strong draft, preventing the accumulation of dangerous gases below and carrying away all fumes from the galley. In case of a break to the steering apparatus, provision has been made for the use of a tiller, the stock of which may be inserted through a hole in the after deck.

The boat might be criticized by some as being too high for her length, but this appearance is created principally by the pilot house which is so seldom seen in Eastern designs, but which, especially for cruising in Northern waters, is a most desirable feature.



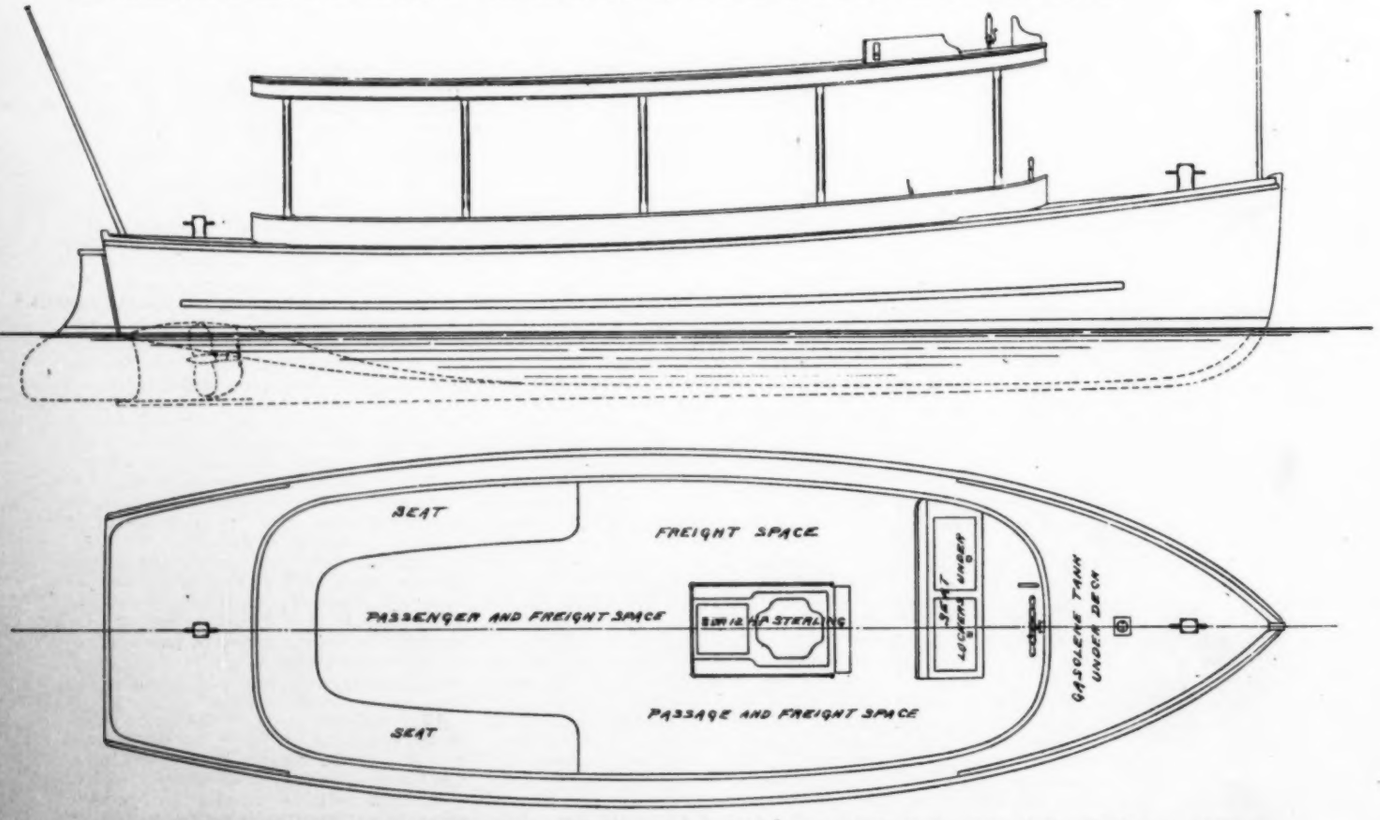
The 66-footer, designed by Wm. J. Deed, Jr., for the Adams Ship Building Company, of East Boothbay, Me., shows high freeboard fore and aft, a well protected steersman's cockpit forward, low superstructure and an interesting interior arrangement.

A New 66-Footer.

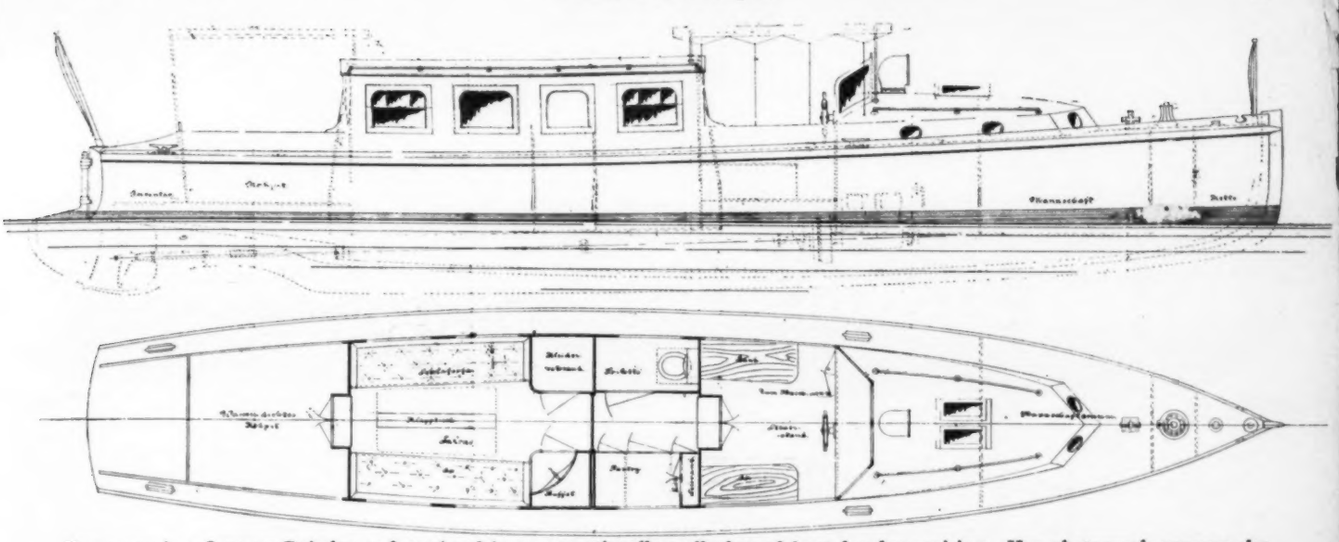
ABOVE is shown a design for a 66-footer recently completed by Wm. J. Deed, Jr., for the Adams Ship Building Company, of East Boothbay, Maine, and a boat from it is to be built by this firm for the coming season. She was designed for outside cruising and there is a long, raised deck forward, terminating at the coaming of a sunken bridge deck. The line of the forward deck is carried aft by the top of the cabin trunk, but the deck along either side and at the stern is on a level with that of the bridge deck.

Below decks the forecastle and crew's toilet room occupy the forward part of the boat, with the engine room beneath the bridge deck, to which it is connected by a companionway. The motors, of 30 h.p. each, should drive the boat at a speed of about 10 miles an hour.

The galley is aft of the engine room and extends the full width of the boat. The main saloon is amidships and contains extensions transoms on either side. Aft of it is the toilet room to port and the companionway to starboard. Two staterooms occupy the corresponding spaces next aft on either side of a passage and the owner's stateroom occupies the after part of the boat.



A shoal draft launch of the tunnel stern type for passenger and freight service, recently designed by Arthur P. Homer, of Boston.



Kormoran is a Lurssen-Daimler 43-footer and is an exceptionally well planned boat for day cruising. Her photograph appears elsewhere in this issue.

Kormoran—A German Cruiser.

KORMORAN, the design of which appears above and a photograph of which will be found elsewhere in this issue, is a 43-ft. Lürssen-Daimler estuary craft owned by Herr Walther Weyermann, who uses her for cruising on Lake Constance.

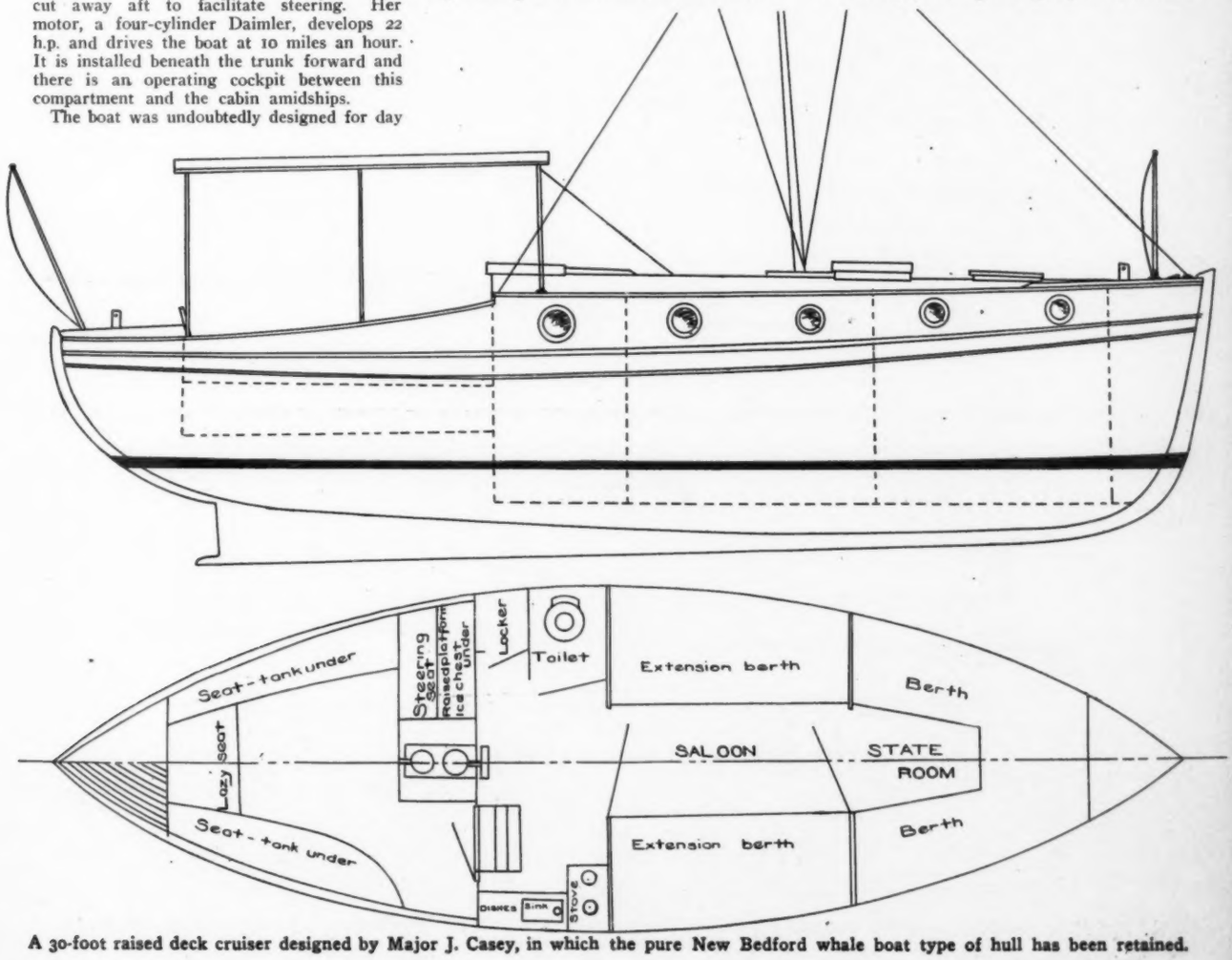
She is of a type popular with German designers, with plumb stem and stern, a rather pronounced sheer and with her dead wood cut away aft to facilitate steering. Her motor, a four-cylinder Daimler, develops 22 h.p. and drives the boat at 10 miles an hour. It is installed beneath the trunk forward and there is an operating cockpit between this compartment and the cabin amidships.

The boat was undoubtedly designed for day cruising, and for this purpose some of the recent German designs are ahead of some of our own. The cabin is well ventilated by the doors at either end and the large windows and the cockpits forward and aft are very desirable in this type of craft. The saloon is provided with seats along either side, which may be converted into berths and has a folding table in the center.

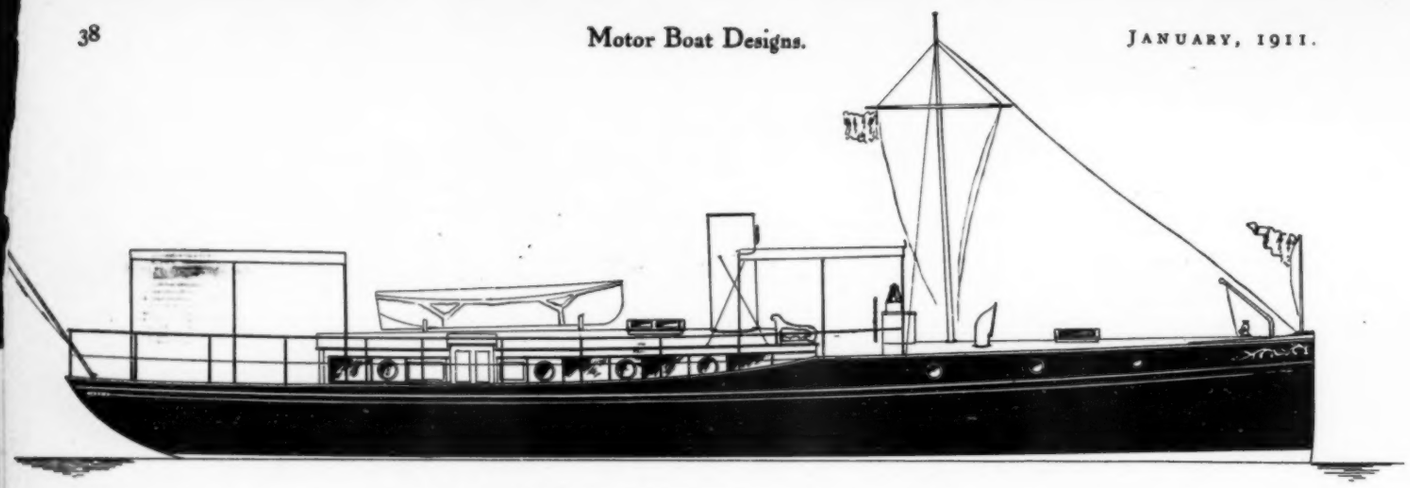
There are four separate compartments between this and the cockpit, viz., a pantry, a toilet room, a wardrobe and a buffet, and for day cruising these accommodations suffice.

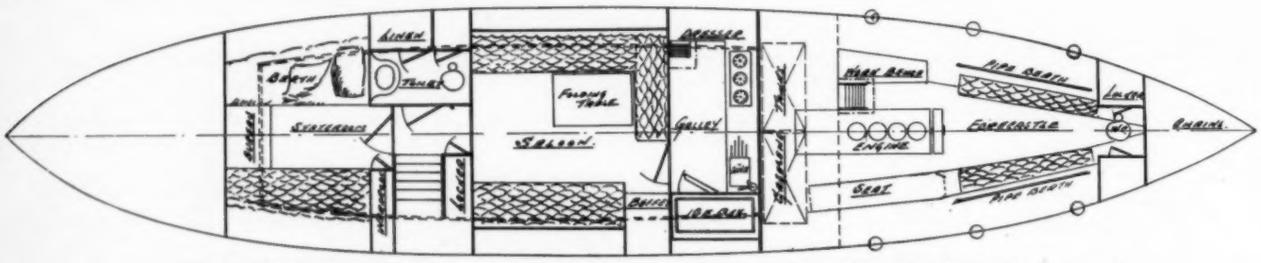
A Cruising Whale Boat.

THE profile and accommodation plan below are of a New Bedford Whale Boat design by Major J. Casey, and which will be built by the same company for Dr. H. L. Norris. The boat is 30 ft. over all by 9 ft. beam and her construction is quite substantial. The cabin sides and coaming are of mahogany, as is also the finish in the living quarters. The motor is a 10-h.p. Bridgeport and will be installed beneath the platform in the cockpit, leaving the galley unobstructed.



A 30-foot raised deck cruiser designed by Major J. Casey, in which the pure New Bedford whale boat type of hull has been retained.





Kathmar II, a Luders 55-footer shows the influence of Triune, a successful cruiser from the same yard.

Kathmar II, a 55-Footer.

KATHMAR II is a 55-footer of 11 ft. beam recently designed by the Luders Marine Construction Company, and now in the process of construction at this plant at Port Chester, N. Y., for Mr. Robert T. Fowler, of New York.

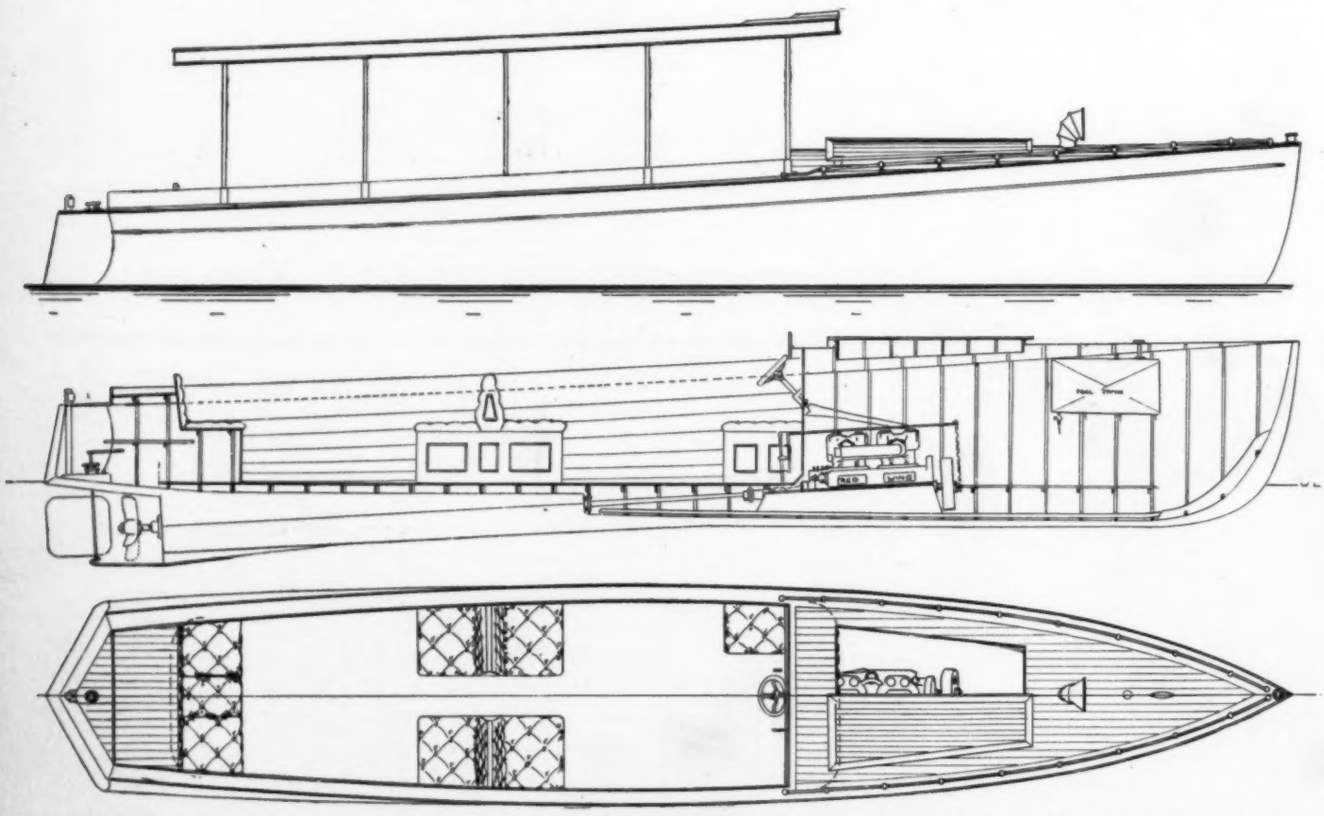
This boat shows decidedly the influence of Triune, a successful 60-footer built by the same company. She will draw about 4 ft. of water and her lines have been kept rather fine, as a speed of 12 miles per hour is desired with a 35-h.p. engine. The construction is of oak and the planking of white cedar.

The motor is installed forward beneath the raised deck and the rest of the space forward is devoted to the forecastle. The after part of the engine and the gasoline tanks occupy the space beneath the bridge deck where the head room is low. A cabin trunk extends from the bridge deck aft and beneath it are a full-width galley, a main saloon amidships, a toilet and companionway occupying corresponding spaces to port and starboard, and a stateroom aft.

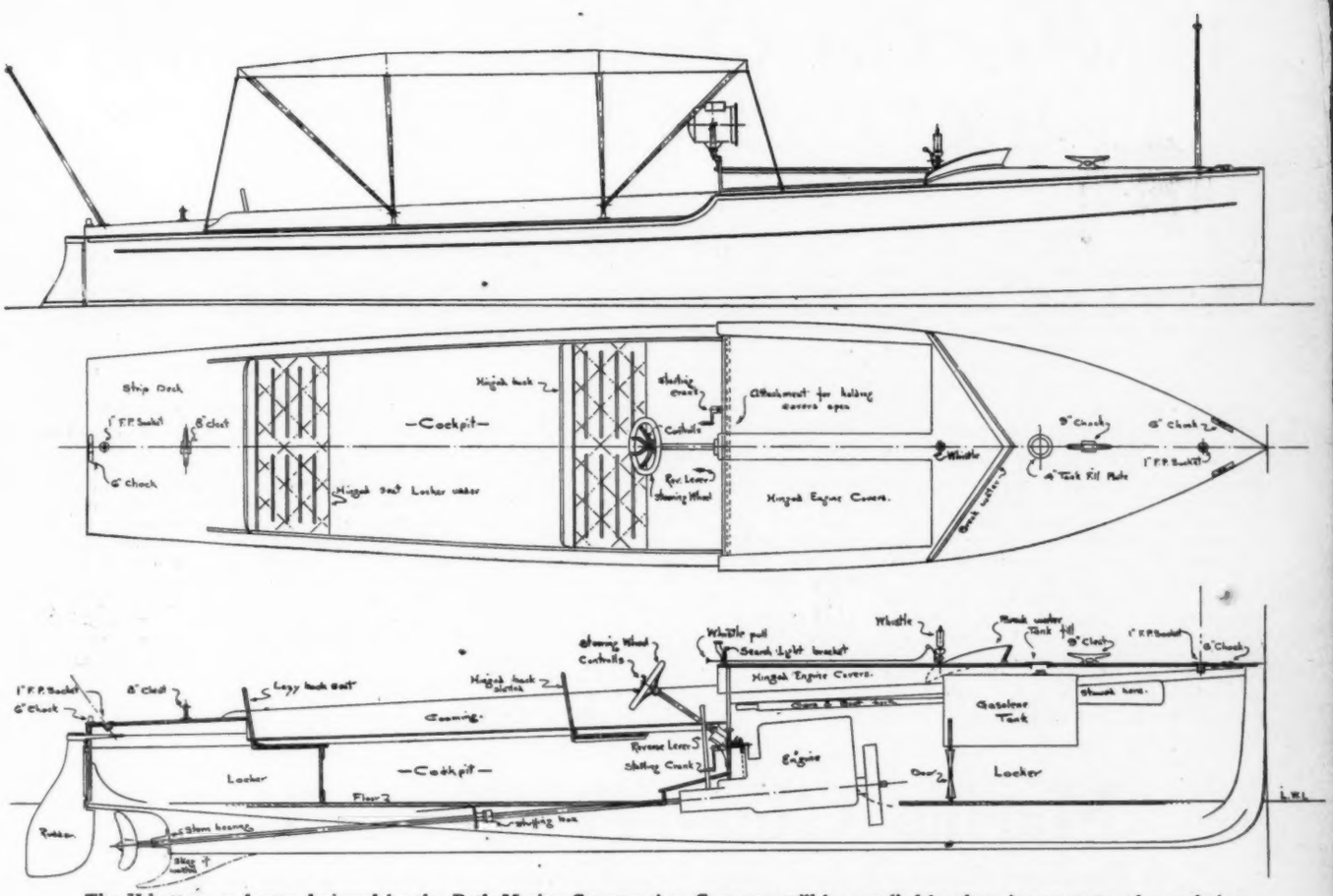
A 32-Foot Runabout.

THE 32-footer shown below is a one-man control auto boat designed recently and now under construction at the Red Wing Motor Company's plant for Mr. A. J. Brooks, of Kansas City.

The boat was designed for day cruising in Mexican waters and will have a standing top with side curtains and sleeping accommodations for four persons. It is equipped with a Red Wing 16-20-h.p. motor, which is installed under a removable hatch in the forward deck.



The Red Wing runabout above was designed for day cruising in Mexican waters, and provision will be made to sleep four persons. Note the arrangement of the midship seats.



The V-bottom 22-footer designed by the Bath Marine Construction Company will be supplied by them in any stage of completion.

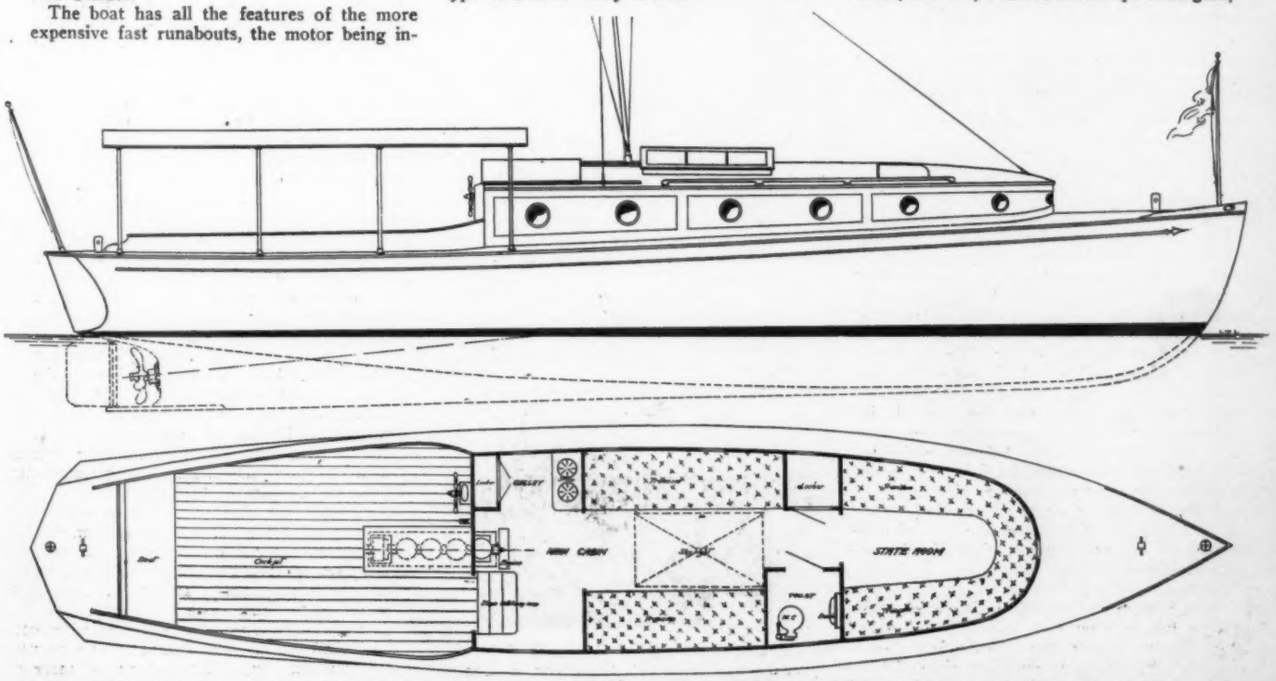
A V-Bottom 22 Footer.

THE design above is of a 22-footer of the V-bottom type recently designed by the Bath Marine Construction Company and boats from which may be had in any stage of completion. Its simple construction, in which there is no bent work, is peculiarly adapted to the facilities of the amateur builder.

The boat has all the features of the more expensive fast runabouts, the motor being installed under hatches in the forward deck and being controlled entirely from the bulkhead. There are two thwartship seats in the cockpit, with space for chairs between and ample locker space beneath the after deck. The rudder is hung outboard on the transom and the quadrant swings beneath the after deck. The speed will vary according to the motor installed, but should be relatively high as this type of hull is easily driven.

33-Foot Trunk Cabin Cruiser.

THE profile and plan shown below are of a trim 33-ft. cruiser of the trunk-cabin type recently designed by the Tarrytown Boat Works. The design shows a large sensible cockpit under the forward end of which the motor is installed. The cabin is divided into a stateroom forward, a toilet room, a locker, a saloon amidships and a galley



In the Tarrytown Boat Company's 33-foot trunk cabin cruiser, the motor is installed beneath the floor of the large cockpit, thus giving more room in the cabin.

How to Get Off When Aground.

An Extremely Simple Method of Relieving a Situation that is Frequently Unavoidable. How One of Motor Boating's Readers Got Off an Oyster Bar.

By C. W. Bartlett.

IT is not to be inferred from the above heading that any of the expert navigators who constitute the reading circle of MOTOR BOATING would permit the keels of their craft to touch bottom, much less run hard and fast aground. However, while they are busy with the engine and the cabin boy or some mere land lubber is temporarily at the wheel, something of the sort is liable to occur sooner or later.

Of course on tidal waters it is possible to wait for the tide if it happens to be rising, but that is a weary process at best and a dangerous one if the water is rough or likely to become so. It is sometimes possible, by planting an anchor in the nearest deep water, to warp the boat off if one has all the necessary appliances; but there is an easier way, which with us was perfectly successful.

In the midst of our cruise last summer we left Leonardtown, a quaint old village in Maryland eighty miles below Washington, and started for the lower Potomac. The mouth of Bretons Bay is perhaps three miles wide, and as our boat, a full cabin launch 36 x 7, has a draft of not more than thirty inches, it seemed safe to turn down the river, leaving Higgins Point about half a mile to our port, without rounding the red buoy, especially as that particular buoy is elusive. We found out our mistake, however, when the boat scraped bottom for several rods and came to a stop with the engine, a twenty horse-power Palmer, still running at full speed.

We were aground on an oyster bar for several feet near the stern in about twenty inches of water. As an obstruction an oyster bar does not differ materially from a ridge of cobble stones. The tide was ebbing and would not help any for several hours. We were in open water where the wind has an unobstructed sweep of many miles, and a habit of raising a brisk sea nearly every afternoon, which would surely pound a boat to pieces in a few hours.

The situation was unpleasant. First we reversed the propeller, but this had no effect beyond digging a hole several feet deep underneath. Then we prospected for deeper water and found it a rod or two behind the boat off to starboard. We then succeeded in pushing the bow of the boat several feet to port, as that part of the boat draws only about a foot of water. This had the effect of pointing the stern toward deeper water. One of us then rocked the stern while the other threw in the reverse. The boat moved astern perhaps two inches and then stuck, while the water rushed forward on both sides like a mill race. Then we released the propeller and let the water quiet down. Suddenly throwing in the reverse while rocking the boat we gained a few inches more toward deep water.

We found that the propeller starting suddenly in solid water would move the boat slightly, but as soon as the water acquired a rapid motion the boat stood still. By alternately reversing the propeller in quiet water and then releasing it until the current ceased we backed off from the oyster bar, and, as I believe, saved our boat. Ample power and a reverse gear permitting complete and rapid control of the propeller were, of course, important factors in withdrawing from the unpleasant situation.

The principle is certainly a simple one and worth remembering.

Marine Glue--A Cure All.

A Few Facts About a Subject With Which Many an Amateur is Unfamiliar. Numerous Ways in Which It May be Used by the Motor Boatman.

By W. E. Partridge.

HE is a fortunate man who has not at some time punched a hole in his boat or canoe. Usually the hole is underwater and there is no boat builder within 50 miles. If the boat is the man's own property his heart comes up in his mouth. If the boat is hired he gets a sharp pain in his pocketbook, besides a "gone feeling" in regard to the way he is to get home. All this is very common, but needless, like many other sorrows. A box of marine glue such as is put up for just such occasions makes a man independent of such accidents, if the boat is his own, and enables him to "argufy" with the owner in a very satisfactory manner.

Marine glue is one of those things that nearly everybody has heard about, but which most people know only by name. It was invented years ago and most of the recipe books give directions for making it. It is called after the inventor, Jeffrey's Marine Glue, and so far as we know, no one else has ever made any that was worth the name and none except the original Jeffreys is on the market. It is made in a number of different colors and grades suited for different uses. There is black, yellow, white and mahogany color, and there are some grades that are quite soft for coating canvas and the like. It is made to suit all sorts of special requirements, there being ten or twelve different varieties. This need not trouble one, for it is only needful to say for what purpose the glue is to be used and the proper grade will be forthcoming. As a matter of fact, almost any kind can be used for any purpose at a pinch if color is not considered.

The reader will ask: "What is it good for and how am I interested in it?" It is not easy to make a list of what it is especially valuable for to the motor boat man. In the first place, with it decks can be made water tight. This can be done by filling the seams with glue after calking or by laying the deck with canvas laid in marine glue. The deck can be painted afterwards to suit the taste. A deck laid in this way is tight beyond a question. If you have a motor canoe and punch a hole in the bottom, a patch of sheeting will make the hole as tight as any other part of the hull, and the work can be done quickly and it is not necessary to reach a shop to do it. Air-tight cases can be made with it by covering boxes with sheeting or canvas and thus air-chambers can be made. Bulkheads can be made waterproof. It is used with sheeting or canvas when double planking is used. Battery boxes can be made water tight and so can tanks for water. It will take the place of white lead in most of the places where lead is used in making tight joints or for bedding. With marine glue one can make water-tight boxes for coils, magnetos, batteries, or any other accessory that it is desirable to have in out of the wet.

There seem to be no places where shellac is used for its adhesive properties where marine glue is not better. As a glue pure and simple it will fasten almost anything one can name to almost anything else. In the boat shop a tool can be held fast in the handle by warming the tang in a candle flame, dropping a drop or two of glue into the handle, putting some touches of glue along the tang and driving it home. We have an idea that even a three-cornered file will stay in the handle after it has had such treatment.

In making spars, whether hollow or built up, this glue is not only wonderful, but almost indispensable; and, in fact, it can be used for all such work where a joint is subjected to water or moisture.

One of the emergency cans put up for canoeists is a very convenient thing to have in a boat, or in the family, in fact, for it will stick more different kinds of things together than any other substance we know of. For example, cork, canvas, felt, oilcloth, rubber, leather or linoleum can be fastened to cement, iron, steel, wood or stone, as to each other. For repairing bone, crockery, rubber, marble or anything else it is really invaluable. Prices of the various kinds vary according to the stiffness and the purpose for which it is intended and the quantity used. There are special directions for use of each quality, which should be carefully observed, especially that in regard to continued boiling, which hardens and injures the glue.

When used for air-tight compartments of boats, and in combination with canvas, the glue used is of softer quality than that used for deck seams, battery jars and the like. This makes it somewhat easier to handle.

Our advice to every canoe owner and motor boat man is to keep an emergency box of marine glue on hand. The feeling of security which its possession gives is worth far more than the 25 cents which the box costs.

Teresa was designed by Edson B. Schock, and built by A. H. Foss and Son, at Colby, Wash.

How to Build an Extension Berth.

This Essential Feature of the Small Cruiser Discussed by the Readers of MoToR BoatinG. Drawings and Instructions for Building Several Simple Extension Transoms.

THE PRIZE CONTEST—Answers to the First Question in the November Number.

A Drop-Back Berth.

The Prize Winning Answer.

ALTHOUGH the question in November issue calls for a berth for a moderate sized cruiser, this extension can be used on either large or small cruisers.

You will notice that the three front stiles are screw-fastened to the seat with a small iron bracket underneath, making a very steady and strong extension. Small iron uprights may be used instead of making the stiles movable, but they would interfere a great deal with the simplicity of the berth. You will note these uprights on drawing. The small piece is to be securely fastened underneath at least four inches from the front edge of seat.

If you want berth 6 ft. long and to extend to a 40 in. width, make the seat 21 in. wide and the back 19 in. high with a 3 in. stationary back rail above. Figuring on cushions 3 in. thick, make the seat cushion 21 in. and the back 19 in. wide. This when closed would make a good comfortable 18 in. seat and a 19 in. back. you will note the amount of locker space that can be had this way. There is good space for blankets, pillows, etc., in the rear of back rest, and large lockers underneath seat. The latter can easily be made into drawers or drop lockers. Hinge the back and seat together, and screw a 2-inch strip or molding to front edge with about a 3/8 in. fillet above seat; this will prevent cushions sliding from seat either from vibration of boat or heavy sea. There is a 5 in. rail and 5 in. stiles on each end notched out on one end for bracket as per drawing. The inside center stile is 6 in. wide with two rails spaced 2 in. apart to allow for guides to slide through, fastened underneath seat and back. The top and lower rails are 7/8 in. by 2 in., and are screwed to the inside stiles. The locker doors are very easy to make. Take a 3/8 in. board the exact size of opening between movable uprights and top and bottom rails, then take pieces 1½ in. wide, ½ in. thick and cut four pieces 12 in. long, and fasten crosswise on door panels, running screws in from back of panels and fit top and bottom rails the same. Then break a 3/8 in. quarter round inside of same, as per drawing. Following you will find the complete list of lumber used in one berth 6 ft. long, 40 in. wide:

1 top back rail, 6 ft. by 3 in. by 3/4 in.
1 back seat, 6 ft. by 19 in. by 3/4 in.
1 seat, 6 ft. by 21 in. by 3/4 in.
1 seat moulding, 6 ft. by 2 in. by 3/8 in.
4 top and bottom rails, 30 in. by 2 in. by 7/8 in.
2 locker doors, 30 in. by 12 in. by 3/8 in.
4 door stiles, 12 in. by 1½ in. by ½ in.
4 door rails, 27 in. by 1½ in. by ½ in.
3 movable uprights, 16 in. by 4 in. by 1 in.
3 battens, 18 in. by 2 in. by 3/4 in.
3 battens, 20 in. by 2 in. by 3/4 in.
2 inside uprights, 15 in. by 5 in. by 7/8 in.
1 inside upright, 15 in. by 6 in. by 7/8 in.
2 stretchers, 24 in. by 2 in. by 7/8 in.
2 stretchers, 24 in. by 5 in. by 7/8 in.
15 ft. quarter round 3/8 in. moulding.
3 small iron brackets.

GEO. H. YUTTE, Cincinnati, Ohio.

A Draw Extension.

THIS extension berth is for those who want one that doesn't take up any room, isn't unsightly and does not interfere with the use of drawers, if any, in the transoms.

I made the entire extension of 7/8 in. oak, excepting the front cover board and clamps. The sliding supports measure 7/8 x 2½ in., are spaced 2 ft. apart and are the exact length of the shortest inside width of transom.

The fixed supports are 7/8 x 2½ in. and are securely screw fastened to the clamps, which are 1⅛ x 2 in. The front cover board is 5/8 x 4 in. oak. The top board along the front covering board is 7/8 in. cypress—the same as the rest of the transom top—and of a width equal to the width of the first transom top board, which must be removed. If it is carefully removed it can be used for this purpose.

The short, sliding cross-pieces are 7/8 x 2½ in. and fastened to under side of sliding supports by bolts. The slats that are laid on the extension when the latter is pulled out are 7/8 x 2 in. cypress, and can be either in 2 or 4-ft. lengths for convenient stowage, when the extension is pushed in. When the extension is in, the excess cushion folds up against the side of cabin as shown.

This extension gives me 8 in. more width, but I could easily have had 10 in. The berth extended measures 30 in., which is quite sufficient.

SEA ROVER III, New York City.

The Prize Contest *in* Questions and Answers

NO matter which phase of motor boating you indulge in or are interested in, whether you run to the cruiser, the open boat or the runabout, and no matter how old you are at the game, you should find something of interest or value in this month's contest.

THE answers this month are better than ever, and the drawings that accompany them, with a couple of exceptions, have been published just as they were received, without redrawing. In judging the answers, the idea of course, is the principal consideration and the statement of it and the drawing, if there is one, are of secondary importance. However, we must confess that the preparation of the answers does have some weight, and other things being equal, the well prepared one would be awarded the prize; and therefore, we are glad to say that the quality is steadily improving.

THE three questions for this month each drew a large number of good answers and we regret that we are limited to five pages for this department, as there are a number of others that we should like to publish. In order that more answers may be published hereafter, we request that contributors try to keep within the 500 word limit. As we said above, it's the idea that counts and the more concisely it is stated, the better.

THE QUESTIONS FOR THE MARCH CONTEST ARE THESE:

Give instructions and drawings for the construction of a home-made spray hood for an open boat.

Suggested by Alton G. Cook, Petoskey, Mich.

Describe the best method of arranging the galley and pantry on a small cruiser where the space for the purpose is limited.

Suggested by F. H. Maloney, New Haven, Conn.

As in many cases there is not room enough to carry the tender aboard, give best method: first, of towing it, considering the condition of a head sea, following sea, etc., and second, of preventing it from knocking against the cruiser when at anchor in shifting tide and varying winds.

Suggested by Fred Dana Marsh, Nutley, N. J.

Answers to these questions, addressed to the Editor of MOTOR BOATING, 381 Fourth Ave., New York, must be:

a) In our hands on or before January 25, (*b*) not over 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired).

Questions for the next contest should reach us on or before the 25th of January.

THE PRIZES ARE:

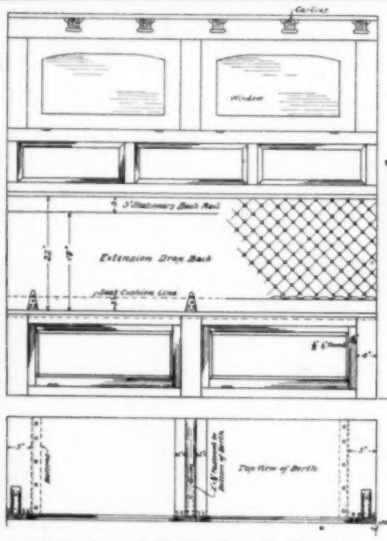
For each of the best answers to the questions above, *any article* advertised in MOTOR BOATING, of which the advertised price does not exceed $25, or a credit of $25 on *any article* advertised in MOTOR BOATING, which sells for more than that amount.

(*There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.*)

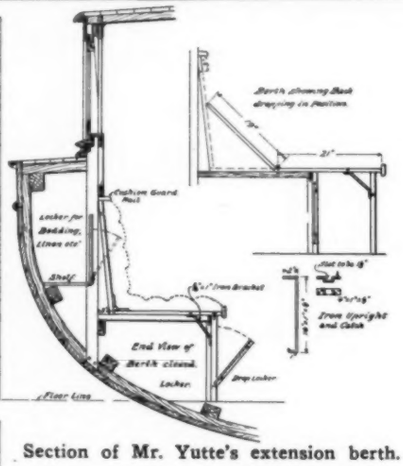
For each of the questions selected for use in the next contest, *any article* advertised in MOTOR BOATING, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in MOTOR BOATING, which sells for more than that amount.

For all non-prize-winning answers published we will pay space rates.

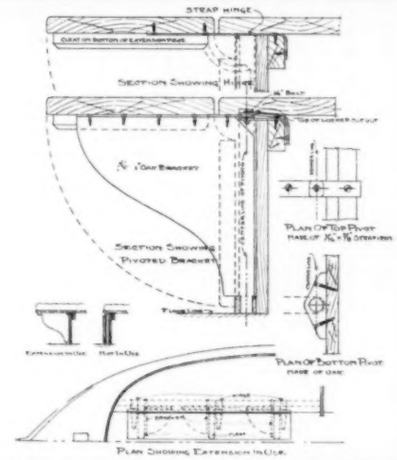
When you send in your answer, state what you will take if you win the prize.



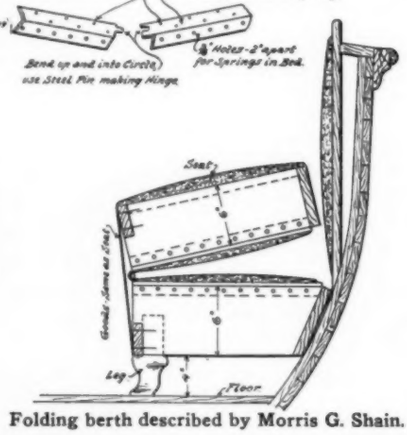
Elevation of G. H. Yutte's Transom.

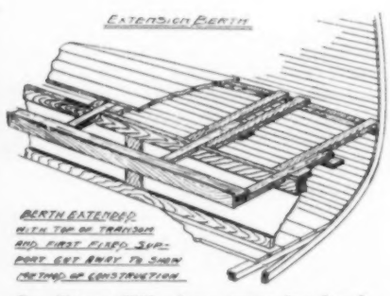


Section of Mr. Yutte's extension berth.



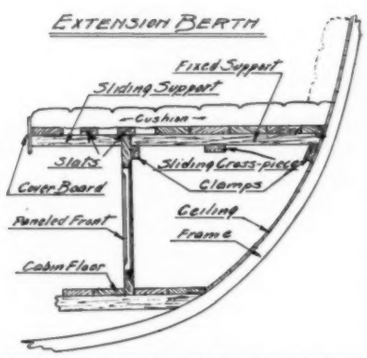
Design of a drop extension berth submitted by August Weber, of College Point, N. Y.





Sea Rover III's draw extension berth.

Folding berth described by Morris G. Shain.



Section of Sea Rover's berth with draw extended.

The Folding Kind.

IF possible this berth should be made a little over 6 ft. long and 17 or 18 in. high. A good width is 20 in., making a comfortable bed 40 in. wide. If this is too large it can be made as narrow as 14 in. and still be a good seat.

First make the frame, using 2 in. by 6 in. for end pieces, cutting out on the top and lower front edges to fit 1 in. by 3 in. pieces as shown. Use 1 in. by 6 in. for back pieces. Nail solid and hinge, then complete bed before making seat.

If not able to make the angle-iron hinge shown, use large size strap hinge and make springs fast with screw-eyes or staples. Stretch "length twines" tight, then "cross tie," so they cannot separate or cluster. Now cover with burlap or canvas and tack all around to frame. Pad with about 10 pounds of cotton or other filling (cotton best on boats) and stretch on mattress ticking. Tack neatly same as burlap and cover with braid.

To tuft, thread needle with strong twine run through from top, cross over spring wire and back up. Tie ends, putting tuft under twine.

Close bed and fasten with hook and eye on end or "snap hook" on back. "Board in" at dotted line in Fig. 3, fill in and pack with cotton or hair, etc., and cover with chase leather, leather or plush. Ends and front side should be covered with the same material and tacks covered with braid or gimp. The back should tilt back slightly if possible.

MORRIS G. SHAIN, Seattle, Wash.

Bulkhead Arrangement of Controls.

Steering, Starting, Throttle and Spark Controls and How They are Bunched at the Bulkhead. Discussions and Diagrams of This Important Problem of the Up-to-Date Open Motor Boat.

THE PRIZE CONTEST—Answers to the Second Question in the November Issue.

TWO years' experience with a semi-speed boat, using bulkhead control, have given me the following arrangement that is quite satisfactory:

In the engine compartment on the propeller shaft is a loose sprocket on which is a pawl that engages the teeth of a ratchet that is keyed to the shaft. Above the propeller shaft about fourteen inches from the cockpit floor is a short shaft with a sprocket keyed to one end directly above the sprocket on the main shaft, the other end comes through the bulkhead with a crank keyed to it. A bearing between the sprocket and the crank is bolted to the engine side of the bulkhead, also braced from the bottom of the boat. As the engine starts out after cranking, the pawl drops away from the teeth in the ratchet, leaving the sprockets, chain and crank stationary.

On the starboard side of the bulkhead, just

Simple and Efficient.

The Prize Winning Answer.

far enough to clear the crank, is the steering wheel shaft bearing, the steering wheel is the automobile type of wheel and the shaft is a piece of brass tubing 1½ in. in diameter. This shaft is set at an angle which gets the wheel in a comfortable position for the operator and far enough from the bulkhead to give him room for his feet without cramping. The bearing is brass and is fastened to the bulkhead near the floor. A drum is fastened to the steering wheel shaft on the engine side of the bulkhead with ropes running down and under the floor. This gets the drum and ropes out of the way and still get-at-able when in need of attention.

The engine control levers are mounted near the top edge of the bulkhead on a vertical line with the steering wheel bearing. This brings them within easy reach of the operator just over the wheel. Any amateur mechanic can make the patterns for this control and finish them himself, or may buy a similar device of the marine supply houses. Consult sketch to see how it is made.

Near the top edge directly over the crank is the switch with its wires running on the engine side of the bulkhead. My coil is of the box type with no cover over the vibrators, and therefore I have located it on the engine side a little to the left, just enough to clear the reverse lever rod which comes through below the switch. In this location the coil is protected from the spray. For lubricating the engine one two-lead oil cup and three compression grease cups are used, mounted on a brass plate on the port side and connected to the engine by brass tubing.

This arrangement brings the full control within reaching distance of one operator, and gives a right-handed man a chance to use all his strength on the crank if necessary, the port side being free from obstructions. It also allows two to sit in the operator's seat

GEO. SORENSEN, Rockford, Ill.

An Original Method

REFERENCE to the accompanying sketch, together with the following brief explanation, will enable the reader to obtain an idea of a system I have worked out.

In the first place, just a few general remarks about the arrangement of the forward end of the boat. It will be noticed that the reverse gear is placed as near the engine as possible, instead of farther aft, as is the usual practice. This enables the operator to manipulate the reverse without the intervention of the extra control rods which would be necessitated by placing the gear near the stern. The control lever being on the center line of the boat is no inconvenience, as it is short enough not to interfere with the operator's legs.

Then it will be noticed also that the "Bulkhead" is about nine inches ahead of the coaming at the point where the steering wheel is attached. This allows the operator to sit with his knees well under the steering wheel and adds considerably to his comfort.

The starting crank, which is shown standing erect in the sketch, ordinarily rests on the floor and occupies space which is not valuable for any other use. This crank consists of a steel ratchet sleeve about two inches long, pinned to the propeller shaft; and bearing on this sleeve is the brass crank proper which carries a ratchet dog which may be thrown in or out of engagement easily. This device is cheap, simple in construction, noiseless, and efficient. Perhaps it is not quite as accessible as the popular types of starting outfits, but it certainly takes up less valuable space and is not very inconvenient at its worst.

The method of attaching the spark and throttle control is readily seen from the sketch. The levers are situated one on each side of the steering wheel rim and operate on a simple friction quadrant as shown. On the end of the spark control rod and outside the bearing shown, a coil spring is slipped and held in place by means of a washer and cotter pin, in order to give the proper pressure between the control levers and the quadrant.

On one end of the "shelf" I have installed the spark coils, which are readily accessible by lifting one side of the door over engine room. On the other end of the shelf I have the dry battery cells, which are held in place by means of a strap surrounding them and screwed fast to the shelf. The space between the coils and the battery I find useful for storing what few tools I usually need in the every day running of the motor. The switch for controlling the electrical current is screwed to the coaming just to the right of the steering wheel and is easily reached by the operator.

E. D. G., Three Rivers, Mich.

Controls Well Bunched.

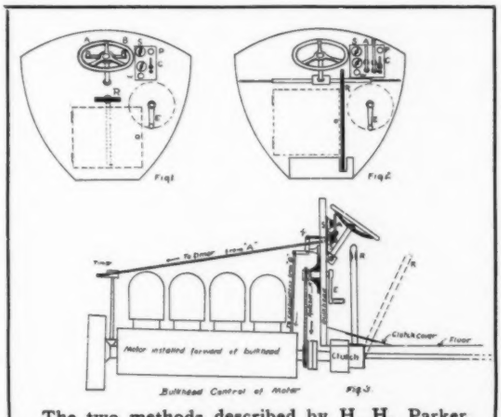
THE main thing in installing a bulkhead one-man control in a runabout is to have all the controls and the reverse lever bunched *as near the steering wheel as possible*, and not spread over the whole bulkhead. In coming up to a float or wharf, for example, the motor must be slowed down by spark, throttle, or both; then the clutch thrown out and motor slowed down still more to prevent racing, and usually the propeller is reversed. Besides this, the steering wheel must be manipulated during all the above operations. Therefore, it is necessary to have the controls in a bunch near the latter and to have all on the same side of it, so that one hand may work the wheel and the other controls, without changing over.

The gas and spark controls are usually small brass ratchet levers attached to bulkhead and connected to the timer and carbureter throttle by brass rods, say one-quarter inch in diameter. If the timer and throttle are in inaccessible locations, a system of levers and bell cranks must sometimes be used; this will differ for every boat and engine combination and must be worked out for each particular case. In "x," Fig. 3, a bell crank lever is shown to change the movement from horizontal to vertical, also a straight rod running direct from control on bulkhead to timer is shown. These bulkhead controls should always contain a ratchet to hold them in place in any position

Figures 1 and 2 show two different methods of control. Fig. 1 is probably the best, as the spark and throttle controls "a" and "b" are mounted directly on the steering wheel. This is known as automobile control. Here the steering drum or rack is supposed to be the other side of the bulkhead, with the steering column projecting through. In Fig. 2 ordinary rack and pinion wheel is used and the spark and throttle controlled from separate levers "A" and "B." In Fig. 1 the reverse clutch is forward of bulkhead with handle "R" projecting through; in Fig. 2 clutch is abaft bulkhead.

S S are two switches for motor and lights; "W" is a whistle pull; "C" is a small lever for closing air inlet in carbureter in starting, or for "tickling;" "P" represents the handle for an oil pump, very convenient for filling the lubricating oil tank which would be located near or on motor, or for filling the oil cups from a separate tank. "E" is the crank connected by a chain and ratchet to motor shaft, used for starting motor from bulkhead. Doors are shown in bulkhead which might prove very convenient in examining motor, coils, etc., especially in rough weather when hatch over engine must be kept closed. Steering wheel should be on center line of boat, in order to steer a straight course, as the other controls are all on one side of wheel, and can be worked by one hand, using the other to steer.

H. H. PARKER, Oakland, Cal.



The two methods described by H. H. Parker.

An Ingenious Steerer.

HAVING run a passenger launch for several seasons, where the first requisite was a simple one man control, it seems, after several attempts, that this object was attained this last season.

To begin with, the engine was of 12 h.p. under a hood forward, with a starting ratchet in the rear, or between engine and reverse gear. This placed the starting lever and handle of reverse gear in a convenient location. Then the steering wheel was placed on left of bulkhead and was of a kind that I have used for two years. I purchased a bare auto wheel, without shaft, etc., and fitted to it a bronze shaft ¾ in. diameter and 18 in. long, which had a 5/16 in. key-way the entire length.

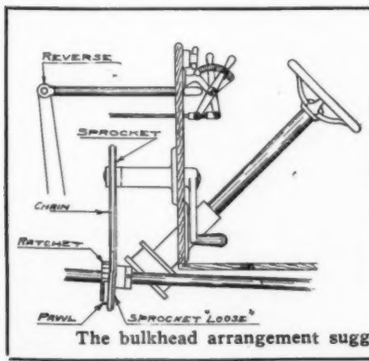
On inside of bulkhead was the drum, on each side of which were fastened brass plates made with projections which fitted key-way in shaft. This allowed me to push wheel clear into bulkhead out of the way when making landings, etc., and when running, allowed it to be pulled out to any convenient point as it engaged drum at any point.

To connect the timer and carbureter I bought a double spark and throttle control and mounted it at right of wheel. This was connected with 3/16 in. brass rod to timer and throttle on carbureter. On the right of control levers were mounted two switches, the upper one a 5-ampere single-pole snap switch, and the lower one, the regular two-point switch furnished with engine. The two-point switch enabled me to use either battery or magneto, while the upper switch, which was connected in ground wire, was the one used to stop and start engine, doing away with the risk of throwing blade of two-point switch too far to right or left, when engine would continue to run.

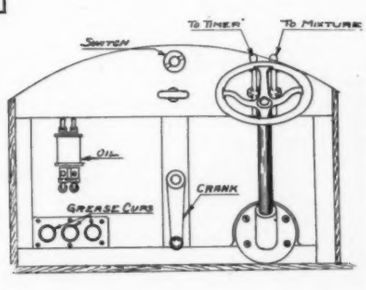
To the right of these switches was a 5-ampere single-pole knife switch which controlled a 6-candle-power lamp in motor compartment, the current for which was obtained from the batteries used for starting.

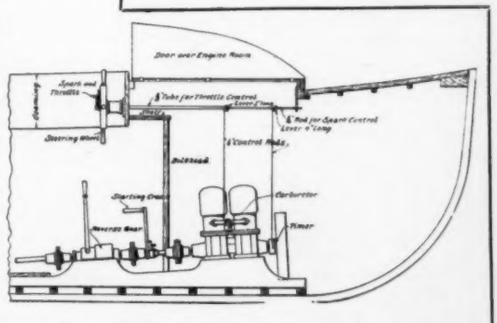
This made an outfit that was a pleasure to handle, especially in difficult situations, as everything was right at hand.

S. M. H., Albany, N. Y.



The bulkhead arrangement suggested in Geo. Sorensen's answer.





E.D.G.'s system has many good points.

The Best Bow and Stern for a Cruiser.

Seaworthiness Speed, Appearance, Accommodation Considered, Which are Best for General Use? All Sides of This Much Discussed Question Considered by MoToR BoatinG Readers.

THE PRIZE CONTEST—Answers to the Third Question in the November Issue.

Seaworthy and Graceful.

The Prize-Winning Answer.

AN "all-round cruiser of moderate size" must be of the raised deck or of the trunk-cabin types. The best profile of bow for such such a boat is shown in Fig. 1. It has a slight backward inclination at A from the sheerline to the waterline. This is more graceful in appearance than a vertical stem and also helps somewhat the ease of planking. It is cut away sharply below the waterline at B. This form preserves the advantage of a long overall waterline and at the same time makes a boat which may be turned easily.

The deck line C should be curved downward slightly at the bow for appearance sake and should have considerable crown, at a radius of about seven feet. At either edge of the deck are "wash-boards" D, about seven-eighths of an inch thick, and about three inches in height at the stem, tapering down to the height of one inch at the rear of the cabin. Chocks may be placed in these boards and they should also be provided with drainage holes for deck-water. These boards add materially to the appearance of the boat and prevent slipping off the deck when working the anchors.

The out-board flare is very much overdone these days in boats of these types. A bow which extends three and one-half feet or more above water will throw the water off from the deck under almost all conditions, even if it has no flare, and will also allow it to dip down into a wave without jarring the boat. However, a slight outward flare of the forward quarter is desirable; for example, a cross-section on the line 2-2 of Fig. 1 would look like Fig. 2. The "flare," in the sense this term is used, is that part outside of the dotted lines in this figure. The flare adds materially to the deck room outside and to the stowage room within.

The design of the stern is a much more difficult proposition. We should abandon speed lines and think primarily of making a good sea boat. The compromise (partly canoe-shaped) stern is undoubtedly good for this purpose. It is also the most difficult to build. It is a very efficient form; that is, it provides an easy run for the water.

In Figs. 3, 4 and 5 is shown a form of stern which is much easier to build, is a good-looker, and retains many of the advantages of the compromise stern. This form affords a wide under-body, with its attendant buoyancy and with the advantage of providing good deck room. The "tumble-home" shown in Fig. 3 is recommended for the purpose of making good-looking deck lines. The transoms are curved for looks only.

In a sea a boat with such a stern will allow the waves to run up and back without much drag and will not bury its bow. It has sufficient buoyancy to prevent "squatting," and is so wide that the cockpit may be carried away back, leaving only a short after deck. This form of stern is designed for the purpose of providing a good sea boat, but at the same time does not sacrifice speed in order to accomplish this result.

E. W. MARSHALL, New York City.

A Unique Bow.

THE bow arrangement shown herewith is designed to avoid being washed overboard or sliding off the deck forward with the rolling or pitching of the boat, when getting underway, either from in anchorage or from moorings where there is a swell on. It is always difficult to keep a footing forward and is sometimes extremely dangerous on a boat without rigging.

The anchor, a Providence 60-lb. Stockless, is hauled up into the hawse pipe, the chain or wire rope passes over the wildcat through the deck pipe to locker below. The patent Gipsy windlass can be worked by lever, by a man sitting on the forward end of cabin trunk, and when standing to let go or make fast lines, he can brace his feet against the breakwater or bow chock. The bow chock also keeps water off of the deck and gives deck room forward.

The space forward, which in the raised-deck type of boat would be air space below the deck, is of more value above the deck for foot space. The top of the chock is kept on a line with the top of the cabin trunk and thus presents a symmetrical appearance. Should any sea be shipped over the bow in heavy weather, it flows off at sides of trunk.

The stern, a buoyant type, will divide any wave which may roll against it and not slap the water over the deck.

It is a strong type of stern, and there will be no danger of opening seams by excessive strain, as in a long overhang when scudding on a wave.

The cockpit is carried well aft, so that lines can be tended from it and there is plenty of room below deck for tiller or quadrant.

A. B. CASSIDY, Wollaston, Mass.

The Whaleboat Ends.

WITHOUT question the "whaleboat" type of bow and stern, similar to "Buccaneer" illustrated in your November issue, is best for the cruising boat. It is also best for any and every kind of power boat which is required to be used in a seaway. The whaleboat type has been variously modified and, in most cases, the modifications have been no improvement.

The essential features of the whaleboat bow are great bluffness at the deck line, and extreme fineness at the load line. In order to blend these two characteristics into a harmonious design, it is necessary to adopt a stem post whose profile is very nearly the quadrant of a circle. The stern is much like the bow, the chief difference being that the under-water lines are a trifle more full, as they sweep into the stern post.

There are at least five advantages to the whaleboat type:

1. The bluff deck at both ends, which gives (a) deck room, (b) buoyancy, (c) dryness, (d) stability or righting power.

2. The fine waterlines, which render the boat easily driven with moderate power.

3. The high freeboard at stern, which keeps her dry in a following sea.

4. The sharp stern, permitting the shifting of weights fore and aft, without appreciably affecting the speed, as there is no transom to submerge and drag.

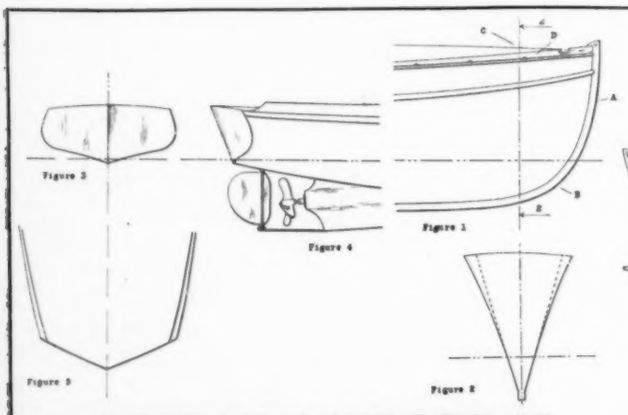
5. The double-ender is the simplest and strongest construction known to marine architects, and a boat of this type will be stronger, weight for weight, than any other type afloat.

In designing a boat of this type, I would avoid any flare to the topsides near the bow. This flare serves no useful purpose, while a slightly convex cross-section, sweeping fairly from loadline to deck, has the advantage of affording more room inside, as well as increasing the lifting power of the bow when plunging into a head sea.

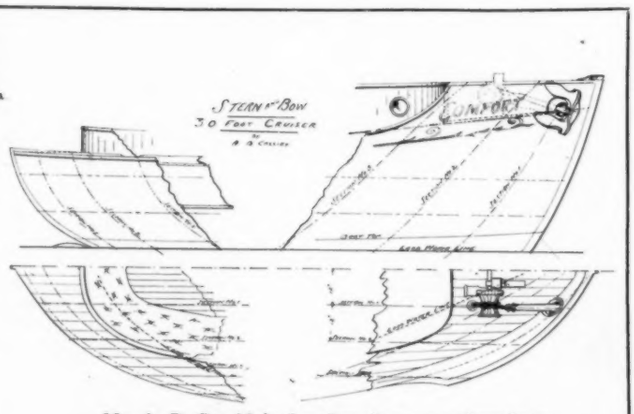
C. P. H. VARY, Newark, N. Y.

Long Waterlines Desirable.

MOST emphatically, a stem nearly plumb, with plenty of flare in the sections, and a transom stern. The profile of the stem should be generally plumb, possibly raking slightly, and curved a little at the waterline, for the sake of appearance, and to preserve the balance with the stern. The sections should



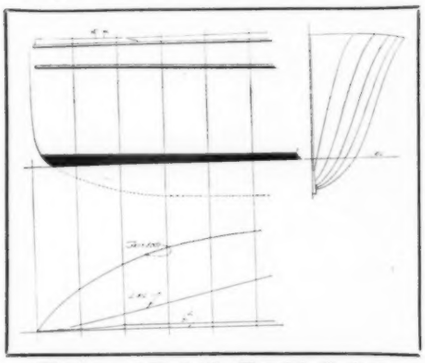
The Combination described by Mr. E. W. Marshall.



Mr. A. B. Cassidy's drawing shows a unique bow.

be narrow at the waterline, to insure an easy entrance, flaring considerably as they rise, with a decided reverse curve or flam at the deck edge. These flaring lines can be carried quite well aft to advantage, rounding towards amidship.

The stern section should show considerable deadrise, the rabbet line being carried down along the keel well aft, and rising in an easy full curve. Above water, these sections should tumble home a little from a point one-third the distance from the waterline to the deck. The width of the stern should be about two-thirds the greatest beam of the boat. The transom



The bow of H. J. MacKenzie's Cruiser.

should always rake aft from the waterline, and at about the angle shown, the lower edge of the transom just at the waterline when the boat is at rest. The transom may be flat, or for the sake of appearance carried to a V, but this line should never form a very acute angle.

The reasoning is this: In a cruiser of moderate size, the first consideration after seaworthiness is economy of space; therefore the plumb stem and transom stern. This type of stem and stern provide the longest waterline possible in a given overall length and a long waterline means easier sea motion and easier driving. If the forward sections are well flared, they produce a bow of great power, which will not plunge in a steep head sea, or jump high out of the water, and the flam near the deck edge insures a minimum of spray and solid water coming aboard. This flaring of the lines also provides a very full deck forward, which is essential to proper handling of anchors and cables in heavy weather. In short, the plumb stem has all the advantages of a raking stem, and none of its faults.

A transom stern is equal in seaworthiness to a canoe stern, as the sections are the same as if the boat were carried out several feet longer. We thus attain more boat on the same overall length and a bigger boat always means a more comfortable one, everything else being equal.

A sharp-sectioned transom stern will produce exactly the same effect in a seaway as the best modeled canoe, or compromise stern, and in allowing longer lines, prevents the boat from settling at speed, as does the other type. The rake in the transom will eliminate any chance of pooping, or taking spray aboard, just as effectively as any other type of stern.

H. JORDAN MACKENZIE, New Orleans, La.

Plumb Stem and Canoe Stern.

WHAT is known as the "plumb bow" is very suitable to any cruiser of moderate size; it enables the designer to make the forward sections finer, which will eliminate that nasty splash and pounding so peculiar to boats having overhanging stems, particularly when at anchor in a heavy sea. For the same reason plumb bowed boats can be driven faster with the same amount of power than most boats with raking bows.

A plumb bow will cut through the waves, and will not be lifted and thrown back when running in a heavy sea, as is the case with overhanging, full bows.

Much more room is gained with this style stem, which is invaluable in a small cruiser, for there is always an enormous amount of odds and ends and dunnage lying around, which could easily be stowed away in this additional room in the forepeak. On the other hand, it is often desirable to put a toilet way up forward, and much can be gained if the bow is plumb. Or, if it is necessary, as is often the case, to put a fuel tank in the forepeak with this stem, a larger one is available, whose extra gallons may sometimes prove to be a godsend.

A canoe stern used in conjunction with a plumb bow not only adds to the beauty of the boat, but is better adapted to the needs of a moderate-sized cruiser than most of the other sterns now in vogue. When running before a heavy, following sea, it has a tendency to lift, if properly designed, and allows no solid water to get on board, which is very dangerous, to say the least, and especially in a small craft. It is also of great assistance when going astern, and the ease with which it does this is all the more noticeable when there is any sea running.

A boat having this type of stern will back with as little fuss as she will make when going forward, and does not shove the water as would a transom stern if deep in the water. Nor, if designed correctly, does it settle when the boat is going at full speed.

Fully as much room is obtained with a canoe stern as with a transom stern, and it looks a great deal more graceful, taking away that box-like appearance so common to cruisers with transom sterns. The overhanging steam yacht stern is hardly to be considered, since it is not adapted to craft much under eighty or ninety feet.

Excellent protection is given the rudder and propeller by the canoe stern, and it also enables one to rig the steering quadrant or tiller aft of the rudder post, thereby saving considerable room in the cockpit, if this is aft, or allowing a longer cabin aft.

On a whole, it seems that a plumb stem and a canoe stern are easily the best adapted to the needs of the moderate-sized cruiser.

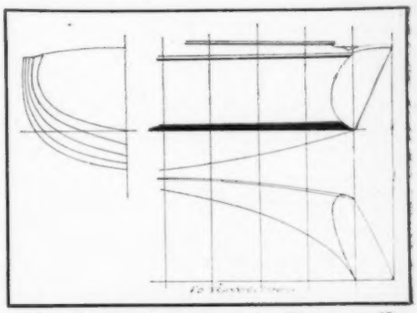
C. D. DAVIS, Marblehead, Mass.

The Double-Ender.

WHAT form of bow and stern is most suitable for an all-round cruiser of moderate size, and why is it the best?

For such a cruiser of the nine-knot, 35 x 9-foot type, all other things being equal, for general cruising purposes the double-ended or whaleboat type of bow and stern is undoubtedly the best. In this case, the problem is to give the boat the easiest and most seaworthy form possible, so that she may be comfortable, dry and safe. Looked at from every angle, a properly designed and proportioned bow and stern of the whaleboat type meet these requirements to the highest degree. Indeed, the stern is almost more important than the bow, as at least half the time you will be contending with a beam, quartering, or following sea. Therefore, while you can drive almost any form of bow through the smother, if you wish to avoid pounding and pitching, the shape of your stern must be "just so."

To begin with, the ideal sea-going cruiser must have good free-board, a bold sheer and medium sharp floors. Bow and stern at the waterline must be fairly clear, excess of buoyancy at the ends will cause the boat to pitch and pound like an empty cask. The boat must rise gently *with* the sea, not over it. If possible, have the fore-foot slightly hollowed. The fore freeboard should be boldly flammed, as this will permit the boat to drop her nose easily into the sea, keep her deck dry, and make a gentle recovery. The flam should be carried well around to where the bow fades into the middle hull, which at this point should tumble slightly home above the waterline, so that her flanks may roll clear, and not scoop up water. Thence the lines should run in easy curves to the stern post. Above the waterline care must be taken not to have the stern too full, as it may in that case drag water, and may also be so buoyant as to pound and drive the bows under when lifted up by a sea. With a fairly lean canoe or compromise stern, at is is called, the boat should settle easily into a following sea, and leave a clean wake at all times. Such a stern also has the advantage of splitting a sea breaking at the start, and sending it off on each quarter. In towing a tender also, if the tender comes home against the stern, it only strikes it a slight glancing blow, and then sheers off. It is only fair to state that, at high speeds, the canoe stern has the disadvantage of settling, but as most cruisers do not exceed ten knots, I be-



Mr. MacKenzie prefers the Normand V stern.

lieve this latter consideration may reasonably be disregarded, in favor of the seaworthy qualities this form of stern gives.

Not only is the whaleboat type of bow and stern theoretically the best for cruising boats, but actual experience has also shown it to be the best. The Viking ship and the New Bedford whaleboat, the surf-boat and the lifeboat, all built for the fiercest kind of service, display the double-ended type of bow and stern to perfection. The 38-foot motorboat "Abiel Abbot Low," which successfully crossed the Atlantic in stormy weather several years ago, was of the double-ended or canoe-stern type.

In conclusion, it may be added that the double-ended type, besides being the most seaworthy type of bow and stern for the small cruiser, also forms a handsome and symmetrical balancing of the ends of the boat, giving opportunity for the designing of a pleasing form of hull.

EDWIN W. OTTIE, Roxbury, Boston, Mass.

Plumb Stem and Normand Stern.

SINCE the true value of forward flare and flam as at present introduced above the waterline is coming to be widely recognized, it is no longer considered necessary or desirable to waste useful waterline length for the sake of a useless forward overhang. Not only is the plumb stem smarter in appearance upon the average motor cruiser, but the added length thus gained for the boat's forward waterlines results in a more easily driven form of hull and one, too, possessed of better seagoing qualities.

Full lines forward no longer distinguish the seagoing motor boat, for it has been conclusively proved that boats with a sharp entrance and easy waterlines, when these are combined with judicious above-water flare, are the driest and fastest seagoing models that can be designed. The full forward deck lines of this type of hull make the handling of lines and ground tackle upon the forward deck convenient and safe, while the reserve buoyancy thus provided prevents the boat from burying when being driven into a head sea, and assists in her quick recovery should an exceptionally heavy sea break inboard over the bow.

While the canoe or compromise stern has proven its splendid seagoing qualities upon many motor craft of all sizes and types, it is now quite generally conceded by designers that

(*Continued on page 56.*)

The $5,000-$10,000 Motor Boat.

The Eighth Instalment of the Series "How Much Does a Motor Boat Cost." Boats That Cost Complete from $5,000 to $10,000 and Engines for Them.

In this issue we resume the "Cost Series" which was omitted from the December number because of the lack of space. In this instalment the $5,000-$10,000 boat is considered and also those engines that would be suitable for use in a boat of this price. These models have all been worked out for some particular set of conditions, and with the minor variations possible in each they offer an almost unlimited range of choice for the man who does not feel the necessity of a special design. In the February issue the $10,000-$15,000 boat and its engine will be considered.—EDITOR.

Adams 68-Footer.

ADAMS SHIP BUILDING CO., INC., East Boothbay, Me. The design here shown is a recent one for a New York yachtsman. She is 68 ft. 6 in. over all, 62 ft. 4 in. on the waterline, 12 ft. 3 in. beam and 4 ft. draft. The least freeboard is 4 ft., but at the bow the freeboard is 7 ft. 2 in. Under the raised deck forward are the crew's quarters, with a water-tight bulkhead at forward end of deck house dining saloon, the space under the latter being used for storage. The dining saloon is 12 ft. long and from it steps lead up to the bridge on the port side and down to the galley on the starboard. The latter extends the full length of the boat for a length of 4 ft. and is thoroughly equipped. The engine room is completely separated by water-tight bulkhead. The motor is a six-cylinder four-cycle Blount & Lovell, developing 32 h.p. at 350 r. p. m., giving the boat a speed of 10 miles. The owner's room is large and easily reached through the vestibule opening, from which are also a bath room and another large stateroom.

Coming within this class also this company is prepared to furnish a 45-ft. cruiser of 10 ft. 6 in. beam and 4 ft. draft, equipped with a 22-h.p. Blount & Lovell and a 10-ft. power tender for $5,500, and a 34 ft. by 7 ft. 10 in. by 3 ft. cruiser equipped with a three-cylinder 21-h.p. Blount & Lovell. These boats were all designed by Wm. J. Deed, Jr., who is the naval architect for this company.

L. H. Coolidge 75-Footer.

L. H. COOLIDGE CO., Seattle, Wash. The boat shown in the design is a 75-footer of 14 ft. beam and 5 ft. draft, designed for use on the Alaska coast and is intended to meet the requirements of a yachtsman who will make extended cruises in waters where a substantial and seaworthy vessel is necessary for safety and comfort. The construction is substantial, the frames being of bent oak planked with fir and copper fastened. The decks are of pine and the pilot house and outside joiner work are of teak. The guards are of iron bark. The spars are arranged to carry canvas when necessary, and the underbody is sheathed with copper. The motor is a six-cylinder 8 x 10 Eastern Standard, with which a speed of 12 miles an hour is expected. This boat may be constructed for $10,000.

The design shows a boat built on the tramp steamer style. This type is one that has proved very satisfactory for motor-boat work, as it combines a number of very good points that are of much importance in modern motor-boat practice. One of the most important points is the seaworthiness of the tramp steamer, as it is well known that there is no better boat for a heavy sea than this type. Another point is that it is possible to obtain full headroom without looking topheavy, and without sacrificing the seagoing qualities that are absolutely necessary in a motor boat that is to be used for open-water cruising.

Cuthbert 60-Footer.

A. G. CUTHBERT, 3033 North Rockwell St., Chicago, Ill. The design herewith shows a twin-screw 60-footer of 13 ft. beam and 3 ft. 8 in. draft, designed for open water cruising. The boat is of the raised-deck type, with trunk amidships the windows of which drop into pockets for better ventilation and light. There is plenty of deck room with space for carrying a couple of boats, one of them power, on chocks on the cabin roof. The crew's quarters are forward, with good accommodation for sailing master and engineer and two men if necessary. Aft of this compartment is the engine room, which contains two 25-h.p. engines and which is separated from the living quarters aft by a water-tight bulkhead. The price, which includes all equipment of a first-class cruising yacht, including electric lighting system, running water, etc., is from $7,600 to $9,000.

Deed 55-Foot Cruiser.

WM. J. DEED, JR., 113 Devonshire St., Boston, Mass. A boat to the accompanying design can be built and equipped with a six-cylinder 32-h.p. Blount & Lovell motor for $8,000. The cabin is planned for comfort and the working parts of the boat for hard usage. The speed is 9 knots and the model is a seaworthy one. A boat is now being built to this design. The dimensions are: length over all, 55 ft.; beam, 11 ft., and draft, 4 ft. Several other designs by Mr. Deed come within this class, among them a 30-footer of 8 ft. 2 in. beam and 2 ft. 6 in. draft, and a 55-footer of 10 ft. 2 in. beam and 3 ft. 9 in. draft for high-speed crusing. The latter boat is equipped with a 45-h.p. six-cylinder Blount & Lovell, the construction is light and the lines somewhat finer than in the design herewith.

A Seabury 45-Footer.

GAS ENGINE & POWER CO. AND CHAS. L. SEABURY & CO., CONS., Morris Heights, New York City. The 45-footer shown in the accompanying design and half tone is of the raised-deck type, and a boat built to it has just been completed for Mr. L. J. Bell, of Lake Charles, La. This boat may be duplicated complete for $8,000. The hull is constructed in thoroughly first-class manner, the inside joiner work being of mahogany and the outside bright work of teak. The motor is a four cylinder, four cycle, 6 x 6-in. Speedway of 32-40 h.p., which drives the boat at 10¾ miles per hour. The price includes electric light plant, all cabin furnishings, awnings, small boats, etc. A boat of this type will be exhibited at the New York Motor Boat Show in February.

The Stearns & McKay cruiser.

A Seabury 45-footer.

The Holmes 50-footer.

Hudson 55-foot cruiser.

Greenport 55-Footer.

GREENPORT BASIN & CONSTRUCTION CO., Greenport, N. Y., offers a 55-footer of 12 ft. 6 in. beam and 3 ft. 6 in. draft, with a rather novel interior arrangement. In this design the living quarters and the galley are aft. The engine room is absolutely separated from the living quarters and may be reached only from the deck. In order to accomplish this it is placed between two watertight bulkheads. The owner's quarters forward consist of a double state room, a second state room and a toilet room, while the main saloon is aft of the engine room and connected with the galley aft. The main saloon is reached by a companionway at its forward end and a hatch behind the seat on the main deck gives entrance to the engine room. The galley is reached by a deck hatch on the port side of the after cabin trunk. The saloon is equipped with extension transoms, so that the entire accommodations of the boat is six persons. The construction is of oak with yellow pine clamps, keelson, stringer, etc., and the deck house and other bright work is of mahogany. A 25-h.p. motor will give the boat a speed of 10 miles per hour and one of 40 h.p. will give an additional 2 miles.

A Hankscraft Cruiser.

HANKSCRAFT COMPANY, Chicago, Ill. The boat shown in the design is intended for general cruising service. It is seaworthy and has comfortable accommodations for four persons on folding Pullman berths in the main cabin, allowing of a comfortable, roomy cabin in the day time. The galley is complete and is conveniently located under the after deck. The power plant consists of a four-cylinder 6 x 6 motor operated by the Hankscraft controller placed in the pilot house. The company is prepared to furnish boats built to this design and completely equipped for $7,000.

The design is rather original, inasmuch as there is a raised deck aft surrounded by netted railing. The object of the raised deck is to allow of the deck chairs being high enough for the people using them to see over the cabin roof, and have an uninterrupted view in all directions. The pilot house is open, except that the forward end is protected with a glass wind shield. The remainder of the cabin is inclosed with plate glass windows that drop into pockets. A small rowing tender is carried on the roof, and is handled by a pair of davits.

Holmes 50-Footer.

HOLMES MOTOR CO., West Mystic, Conn. The boat shown in the accompanynig illustration is a 50-footer, 45 ft. on the waterline and of 10 ft. beam. She is of the raised-deck type, strongly constructed with bow and stern of the canoe type. The interior arrangement is as follows: a chain locker forward, with crew's quarters occupying the next 6½ ft. and entered through a hatch in the forward deck. Next aft a gasoline tank extending practically the full width of the boat. The owner's toilet room is aft of this and amidships is the main cabin with folding swing table, lockers, extension berths, etc. The galley and engine room occupy the after part of the interior and aft of this is a large self-bailing cockpit 12 ft. long. The power plant is a four-cylinder, 6 x 8½ medium-duty Holmes, which drives the boat at over 12½ miles per hour. This boat was designed by Wm. Gardner and will be duplicated complete by the Holmes Motor Co. for $6,500.

Hudson 55-Foot Cruiser.

HUDSON YACHT & BOAT CO., Nyack, N. Y. The boat shown in the accompanying illustration is one designed by Morris M. Whitacker for C. M. Pankard, of Port Washington, L. I. In addition to the usual owner's stateroom an extra stateroom is provided between the owner's room and the main cabin. The boat is of fairly heavy construction and is equipped with a 25-h.p. Standard motor, which drives it at 10 miles an hour. This boat was built by the Hudson Company and will be duplicated for $8,500.

A 48-Foot Fast Cruiser.

MOORE BOAT WORKS, Wayzata, Minn. A boat similar to the one shown in the photograph and design was recently built by this company for fast cruising on lakes and rivers and will be duplicated for $5,800. The dimensions are 48 ft. over all, 47 ft. on the waterline, 8 ft. beam, 2 ft. 8 in. draft. The construction is of oak planked with cypress. There is a 10 ft. 3 in. deck forward and an after deck 4 ft. 3 in. long. The pilot house and engine room is 9 ft. 6 in. in length, the next 6 ft. being occupied by the galley to port and toilet room to starboard. The main cabin occupies the next 9 ft. and the owner's stateroom extends 8 ft. farther aft. The entire cabin inside and out is finished in South American mahogany. The cabin is enclosed by glass windows which drop into pockets. The motor is a 42-h.p. Campbell, and there is an electric lighting system of storage batteries charged by a dynamo directly connected to an independent engine furnishing current for the usual lights and a 1,200 c. p. searchlight. The speed is 16 miles per hour.

48-Foot Southern Cruiser.

THE NILSON YACHT BLDG. CO., Baltimore, Md. This boat was designed primarily for day cruising in southern waters, but is well suited for use in the north as well. She is 48 ft. over all, with beam of 11½ ft. and draft of 3 ft. The motor is a 20-25 h.p. machine, giving the boat a cruising speed of 10¼ to 11 miles per hour. A good feature of the boat is the steering bridge forward with an unobstructed view in all directions, and another good feature is the ample light and ventilation provided by a skylight and windows in the cabin trunk. The boat sells completely equipped with upholstery, electric lights, tender, etc., for $6,500.

The boat is a very good example of the present trend of motor boat design, showing as it does a boat that is speedy and at the same time has enough accommodations for an entire family to spend half the year on board, and live as comfortably as they would on a boat of twice the size a few years ago, when the cabin boat containing the same room would have been at least 60 feet long.

A Nock 60-Footer.

FREDRIC S. NOCK, East Greenwich, R. I. The cabin cruiser shown in photograph and design is a 60-footer of 11 ft. beam and 4 ft. draft. She is equipped with a 40-45 h.p. engine and does better than 10 miles per hour. The interior arrangement speaks for itself and the ample bridge deck with deck room on either side of the house makes the craft a desirable one for several persons to live aboard. The price depends somewhat upon furniture, fittings and power, but would range from $9,000 upward. Another boat by the same builder is a 57-footer of 12½ft. beam and 4 ft. draft, designed for fast outside cruising and equipped with a four cylinder 50-60 h.p. motor. The interior arrangement comprises crew's quarters forward, galley to port, saloon with sideboards, lockers, etc., large clothes press toilet room, small stateroom and large owner's stateroom with double berth. The price of the boat is $8,500 upward, according to motor, etc.

One noticeable feature of the design is the arrangement of the steering cockpit. This is sunken below the bridge deck, so that the steersman has full headroom under the awning, and yet the general appearance of the boat is not affected, as would be the case if the deck was raised up to the sheer line. The arrangements below decks are such that the drop in the bridge deck does not come where there is need for there being full headroom. This makes it possible to have full headroom in all parts of the cabin where there is any need for a man

A Luders cruiser.

The Stearns & McKay ferry launch.

The F. S. Nock 60-footer.

The Sparks 60-footer.

to stand upright. With the steering cockpit up at this hight the helmsman has a view in all directions and at the same time he is out of the wet except in very stormy weather, and then the water does not inconvenience him, as the cockpit floor is watertight and self-bailing.

Peterson 50-Footer.

JULIUS PETERSON, Nyack, N. Y. The design is of a 50-foot raised-deck cruiser, strongly constructed of oak planked with 1¾-in. cedar and copper fastened. The interior finish and the cabin trunk are of mahogany. The boat complete with awning, mast, fittings, cushions, etc., sells for $6,400 with a 40-h.p. Lamb motor, and for $7,200 with a 60-h.p. Lamb.

A good feature of the boat is the location of the steersman's stand, which is up on the raised deck forward, where the helmsman can get a good view in all directions, and also where he will be out of the way of the passengers on the after deck. The location is also well adapted for the use of a one-man control, for the steering wheel is directly over the engine room, and there is no need for a complicated system of levers to operate the reverse and speed controls of the engine. The entire deck is enclosed with a heavy railing, so that there is no danger of the helmsman being washed overboard in a seaway.

57-Foot Racine Cruiser.

RACINE BOAT MFG. CO., Muskegon, Mich. The photograph shows a 57-ft. trunk cabin cruiser with bridge deck forward. She is built of oak planked with cypress or pine and finished in mahogany. She is ordinarily equipped with a 50-h.p. four-cylinder motor, giving her a speed of between 12 and 14 miles per hour. There is an independent generating set furnishing current for the lights, including the searchlight. In the after end on the starboard side is a large toilet and bath room with hot and cold water service. Opposite is a spacious galley with complete equipment, forward is a main saloon with extension transoms which will accommodate six persons. Forward of the main cabin is the owner's stateroom, equipped with double berth.

An Outing 52-Footer.

OUTING BOAT CO., Ashland, Wis. The interesting illustration is of a 52-ft. cabin cruiser of 11 ft. beam and 3 ft. 6 in. draft. This boat contains cabin accommodations for 20 persons and sleeping accommodations for eight persons. Boats of this type will be built and equipped with any reliable motor desired and will attain a speed of 12 miles per hour with a 25-h.p. heavy-duty machine. This model sells for from $7,502 to $10,000, according to the equipment desired. The regular equipment, however, includes everything required by the government regulations and all the necessities and comforts for extended cruising.

51-Foot Cruiser.

EDSON B. SCHOCK, New York City. The cruiser of about 50 ft. in length has long been a popular size of boat, owing to the fact that it is possible to run her with only one paid hand, and the cost can be kept down to the figure to which a great many of the owners limit themselves. The maximum amount of accommodations that can be obtained in a yacht of this length has been secured in the boat shown herewith. She is 51 ft. in length by 12 feet breadth and 3 ft. 6 in. draft. Her accommodations consist of crew's toilet forward, with engine room and crew's quarters next. Aft of the engine room comes the galley, while opposite is located a small stateroom. Aft of the stateroom comes the main cabin with two double transoms, sideboards, lockers, etc. The toilet room occupies the port side of the boat opposite the companionway, while at the extreme after end is a large double stateroom with bureau. The finish in the main cabin is mahogany, while the staterooms are finished in white wood with mahogany trim.

This boat can be built complete with all equipment such as cushions, bedding, cooking utensils, dishes, compass and binnacle, carpets, linen, glassware, 25-h.p. Standard engine, 10-ft. power tender and electric lights for the sum of $7,000.

Sparks 65-Foot Cruiser.

SPARKS BOAT & ENGINE CO., Alton, Ill. In designing the new 65 x 11-ft. cruiser for the coming season, shown in the plan and wash drawing, this company has incorporated speed, comfort and safety, giving particular attention to the light, rigid construction which makes the boat suitable for shallow streams, as well as the Great Lakes and coast service. The raised deck forward and pilot house with floor depressed and the trunk cabin aft are an interesting combination. The windows in the pilot house drop into pockets converting it into practically another bridge deck, and the large doors at the after end of the pilot house permit easy entrance into the main cabin. The pilot house is 17 ft. in length and can be arranged with sleeping accommodations for four persons. Note the extension of the roofs over the sides and ends of the pilot house and also over the rear cabin, protecting the windows from rain. The engines are located directly under the pilot house and the controls can be carried to the steering wheel. The price of the boat ranges from $8,000 to $10,000, according to the power, finish and general equipment.

Two Marblehead Models.

STEARNS & McKAY CO., Marblehead Yacht Yards, Marblehead, Mass. The two boats shown in the photographs are both interesting in that they are both departures from the usual practice. The 60-footer is of the trunk-cabin type, with the entire top of the cabin trunk used for deck space. As to the interior arranement, there is a toilet room in the bow, aft of which are two staterooms occupying corresponding spaces to port and starboard. Next aft is a lare main cabin, and aft of this is the engine room and galley. Access may be had to the main cabin either by a side entrance or through the engine room. She is equipped with a 25-30 h.p. motor, giving her a speed of from 10 to 11 knots. The price for the best equipment and construction is $9,000. The ferry launch shown in the other cut is a 45-footer, with steersman cockpit forward, engine room and cabin beneath trunk amidships and cockpit aft. She is equipped with two six-cylinder 65-h.p. motors, giving her a speed of 25 miles per hour. The price of this boat is also $9,000.

Truscott 52-Footer.

TRUSCOTT BOAT MFG. CO., St. Joseph, Mich. The dimensions of the boat shown in the accompanyin plan are 50 ft. over all by 12 ft. beam. She is equipped with a four-cylinder 6 x 7-in. Truscott heavy-duty engine, delivering approximately 40 h.p. at 450 r. p. m. The equipment includes everything required for actual service except bedding and cooking utensils and comprises upholstery, mast, rigging, awning, dinghy, davits, binnacle, compass and all equipment called for by government regulation. The finish is in quarter-sawed white oak with raised panels. The price is $6,000.

Valley 50-Foot Cruiser.

VALLEY BOAT & ENGINE CO., Saginaw, Mich. The 50 x 14-ft. cruiser shown in the design is to all purposes a house boat with comfortable sleeping accommodations for 10 persons besides the crew, a deck house and unusual room about her flush deck. The pilot house forward serves as a dining saloon and is equipped with a double berth. Going below from this point the galley is reached with toilet room as shown. The main cabin is equipped with a large transom or dresser on either side. Each of these transoms will accommodate two persons and may be partitioned off with curtains. There is a stateroom forward to starboard and a larger stateroom aft on the port side. The engine room is reached from the starboard side of the raised deck forward and contains besides the twin engines benches and berths for the crew. This boat will be built for $8,700.

Van Blerck 45-Foot Fast Cruiser.

VAN BLERCK MOTOR CO., Detroit, Mich. The fast day cruiser Dispatch shown in the cut is a 45-footer of 7 ft. 3 in. beam, powered with two Van Blerck motors of 60-80 h.p. driving twin screws, with which she attains a speed of nearly 25 miles per hour. She is of the raised-deck type and is equipped with toilet room with partition and doors and with two wide seats, which make two comfortable berths. Aft of the cabin is the skipper's cockpit, which is 5 ft. long, and which contains the steering gear and controls. Aft of this comes the motor with a passageway protected by a removable partition, through the center. Aft of the engine is the main cockpit 12 ft. long, having a cabinet on each side, one an ice box and the other a buffet and lavatory combined. The price, fully equipped, is $5,000.

Moore 45-foot cruiser.

The Van Blerck day cruiser.

An outing 52-footer.

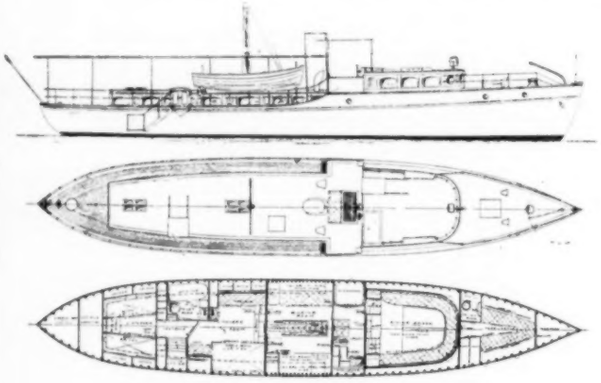
57-foot Racine cruiser.

The design shows a boat of a type that is rapidly coming into favor, as it appeals to the man who has a desire for a speed boat but who wants at the same time a craft that will enable him to enjoy the sensation of running a boat that can run away from anything that he meets, except an out-and-out racer of the fastest type. The boat is very suitable for use as a fast ferry launch for use between the city and a country home, and at the same time it is fast enough to be entered in races for speed boats of a class that formally were composed of boats that had no seaworthy qualities and were only good for use when the water was smooth, and then it was a very wet and uncomfortable job to operate one of these small speed boats.

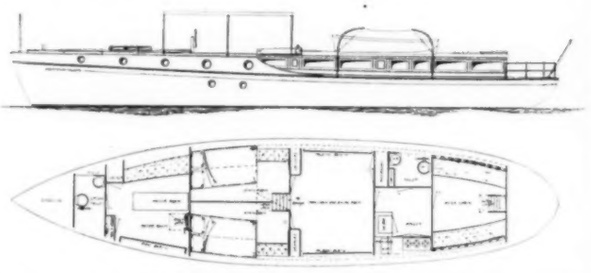
A Whittelsey 60-Footer.

WHITTELSEY & WHITTELSEY, New York City. The 60-footer shown in the accompanying plans was recently designed for Mr. Wm. H. Frank, Commodore of the Poughkeepsie Yacht Club. She is of the raised-deck type, with low mahogany trunk house forward and mahogany trunk cabin aft. The bridge deck, 9 ft. long by the full width of the vessel, affords excellent seating capacity. The dining saloon is forward and is entered from the bridge deck, and contains transoms, a folding mahogany table and buffet. The galley is just abaft the dining saloon and contains a large ice box and the usual equipment. The engine room is just abaft the galley and may he entered through a manhole in the bridge deck. The motor is a 40-h.p. six-cylinder Standard, with controls led to the steering wheel. The owner's stateroom is next aft with a large hanging locker and toilet room opposite. The after part of the cabin is devoted to the saloon connecting by companionway with the after deck. This compartment contains four extension berths. The gasoline tanks are located under the after deck between watertight bulkheads and have a capacity of 350 gallons.

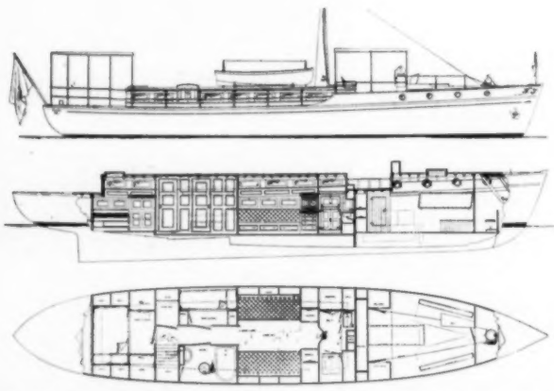
Descriptions of the Designs on this Page Appear on Pages 46 and 47.



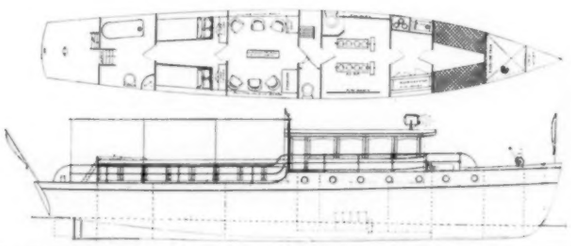
The Adams 68-foot bridge-deck cruiser.



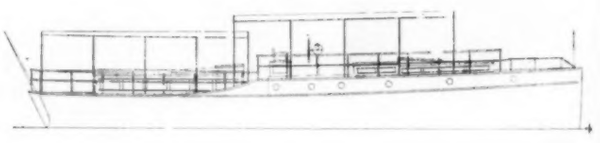
The Truscott 52-foot raised deck-trunk cabin cruiser sells complete for $6000.



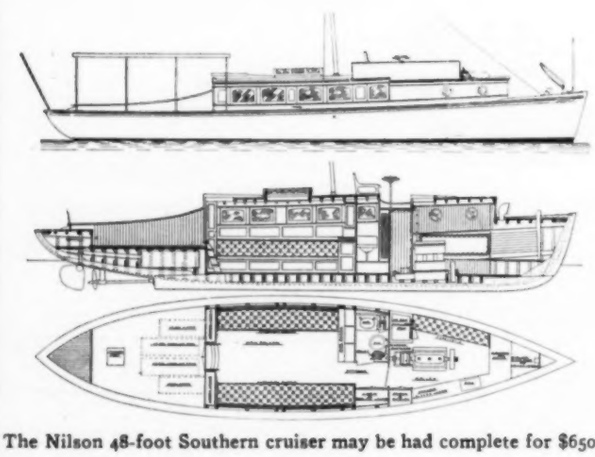
F. S. Nock's raised deck-trunk cabin cruiser would cost not less than $8500.



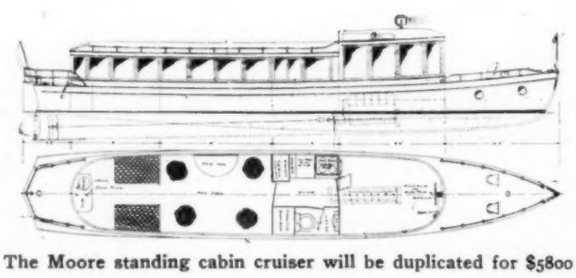
The Sparks 65-footer with deck-house may be had for from $8000 to $10000.



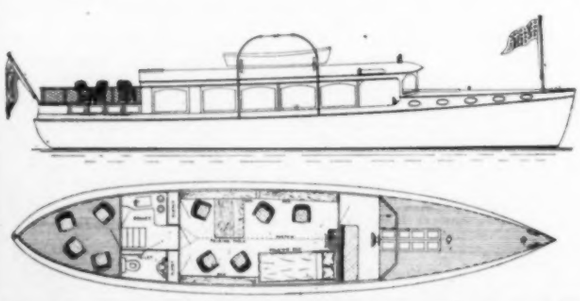
The Greenport 55-footer has an ample bridge deck.



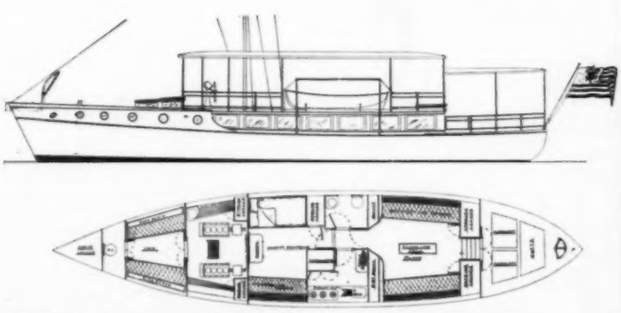
The Nilson 48-foot Southern cruiser may be had complete for $6500.



The Moore standing cabin cruiser will be duplicated for $5800

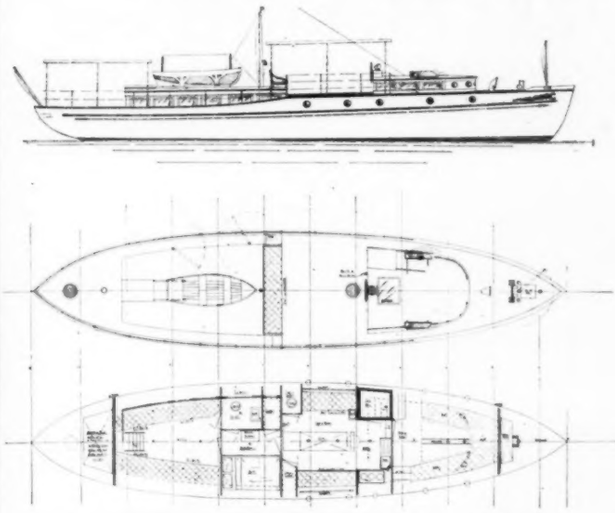


The Hankscraft cruiser with standing cabin. The price is $7000 complete.

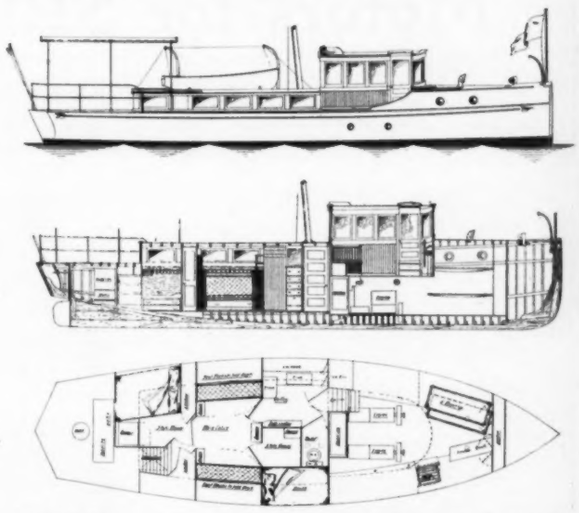


Cuthbert 60-footer with bridge on raised deck. She will be built for from $7600 to $9000.

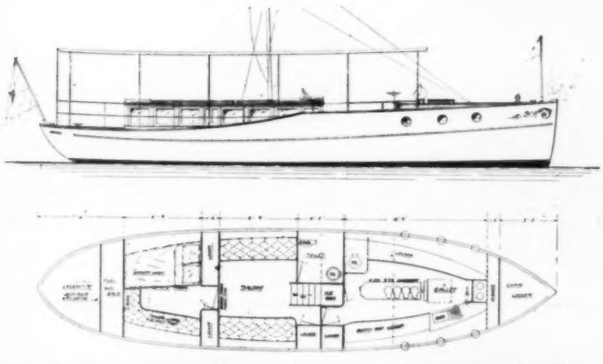
Descriptions of the Designs on this Page Appear on Pages 46 and 47.



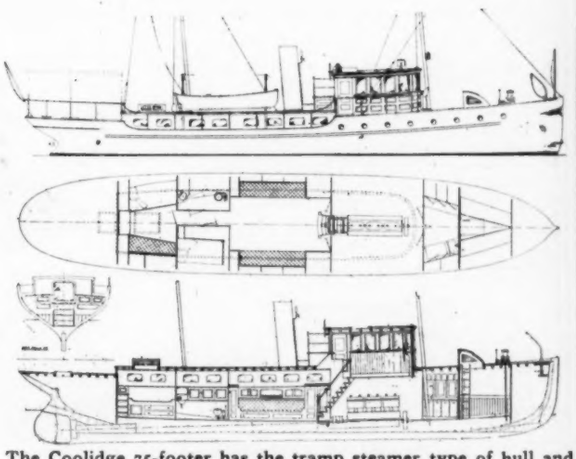
The Whittelsey 60-footer has ample deck space.



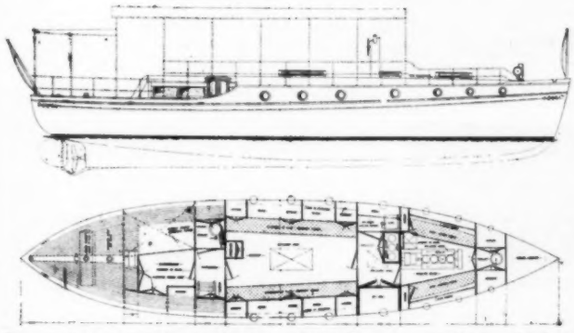
This Valley 50-footer with pilot house may be had complete for $8700.



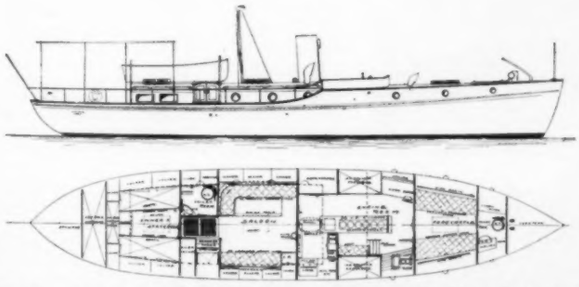
The Seabury 45-foot bridge deck cruiser sells complete for $8000.



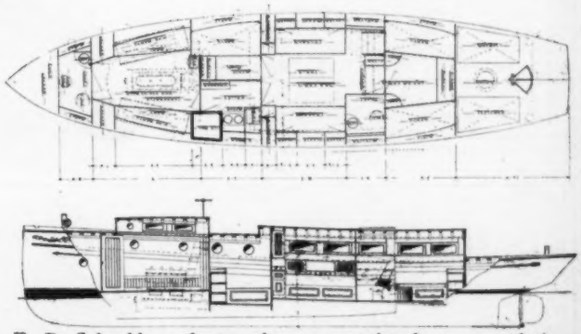
The Coolidge 75-footer has the tramp steamer type of hull and may be constructed for $10000.



Large deck space is the feature of the Petersen cruiser, which sells for from $6400 to $7200.



Deed 55-footer with helmsman's cockpit forward. She will be built and completely equipped for $8000.



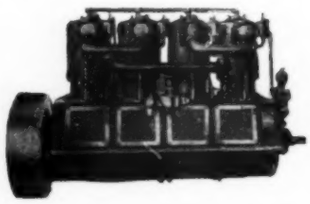
E. B. Schock's 51-footer shows exceptional accommodations. She may be built for $7000.

Motors for $10,000 Motor Boats

The motors illustrated and described on this and the following pages are those suitable for use in boats that cost from $5,000 to $10,000 complete. As an arbitrary price limit for the motors themselves we have taken $3,000 and, therefore, as the limit of those described in the last installment was $2,000, those here considered range from $2,000 to $3,000. The next installment of motors will include those selling for from $3,000 to $5,000, and we request that the manufacturers of such motors send us their photographs and descriptions at once so that they may be sure of insertion.—EDITOR.

150 H. P. Anderson.

ANDERSON ENGINE CO., Shelbyville, Ill. The illustration is of the four cylinder Anderson, which is similar to the six cylinder model here described, being of the same bore and stroke. Six cylinders, 4 cycle, jump spark ignition, bore 9¼ in., stroke 11 in., speed 400 r.p.m., weight 7,000 lbs.

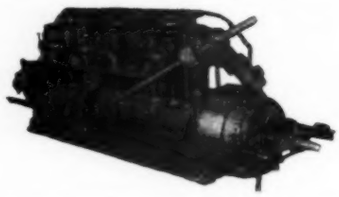


(*Motor complete with electrical and propeller equipments, including reverse gear,* $2,750.)

This engine is equipped with a mechanical force feed lubricator water jacketed exhaust manifold, direct connected reverse gear, large plunger pump and Schebler carbureter. The cylinders are cast separately, the intake and exhaust valves being arranged on opposite sides.

The 90-100 H. P. Capitol.

AUTO ENGINE WORKS, Rice & Fuller Sts., St. Paul, Minn. Six cylinders, 4 cycle, jump spark ignition, normal speed 200-1050 r.p.m., weight with iron base 1935 lbs., with aluminum base 1553 lbs., cylinders cast in pairs, water

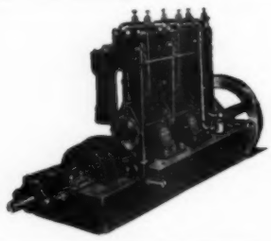


(*Motor complete with electrical and propeller equipments, including reverse gear,* $2,300.)

jacketed exhaust manifold. A special steering and control combination may be had for $55 extra and this model may be had with aluminum base for $140 extra.

The Automatic 50 H. P.

AUTOMATIC MACHINE CO., Bridgeport, Conn. Four cylinders, four cycle, make-and-break ignition, bore 7½ in., stroke 9 in. A 75 h. p. 3 cylinder model of 10 in. bore and 14 in. stroke



and a 75 h. p. 6 cylinder model of 7½ in. bore and 9 in. stroke also come within the $2,000-$3,000 class. These motors may be run on gasoline, benzine, or distillate or a guaranteed producer gas outfit can be supplied. The prices vary considerably according to equipment and will be supplied on application.

The 75-80 Brownell.

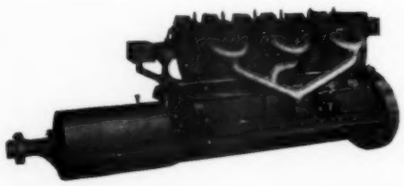
F. A. BROWNELL MOTOR CO., 634-666 Lexington Ave., Rochester, N. Y. The 6 cylinder model to which the 4 cylinder shown herewith is similar, has the following specifications: 4 cycle, jump spark ignition, bore 5½ in., stroke 6½ in., speed 900 r.p.m., weight

(*Motor complete* $2,200, *with clutch and boat equipment,* $2,500.)

1,035 lbs. The cylinders are cast in pairs, with both inlet and exhaust valves in the heads. The crank case is of aluminum alloy thoroughly webbed for lightness and rigidity. The clutch is of the multiple disc type.

The 90 H. P. Buffalo.

BUFFALO GASOLINE MOTOR CO., Buffalo, N. Y. Six cylinder, high speed type, 4 cycle, bore 6¼ in., stroke 6¾ in., weight with reverse gear 1,915 lbs. A 4 cylinder, 40 h. p. model of 7 in. bore and 8 in. stroke and 400 r.p.m.



(*Motor complete with full boat and electrical equipment, double ignition and Bosch magneto,* $2,200.)

weighs 2,550 lbs., and sells for $2,305. A 4 cylinder T-head engine of 65 h. p. at 375 r.p.m. weighs 3,850 lbs., and sells for $2,800. A 6 cylinder heavy duty model rated at 54 h. p. at 350 r.p.m., weighs 4,850 lbs., and sells for $2,000.

The Campbell 60 H. P.

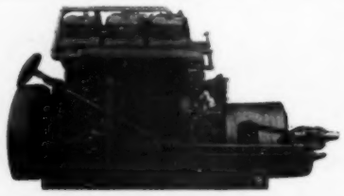
CAMPBELL MOTOR CO., Wazata, Lake Minnetonka, Minn. Six cylinders, 4 cycle, open base construction, jump spark ignition, bore 6½ in., stroke 7½ in., diameter of flywheel 24 in., diameter of propeller 33 in., diameter of crank shaft 2½ in., height from

(*Motor complete with electrical and boat equipment and reverse gear,* $2,537.)

center of shaft 29 in., normal speed 500 r.p.m., weight 2,275 lbs. Equipment includes reverse gear incorporated in engine frame and mechanical force feed oiler. The valve stems are operated by hardened steel cams and rollers located in the base where they are out of the way, but thoroughly accessible.

The 75 H. P. Clifton.

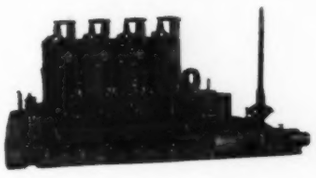
CLIFTON MOTOR WORKS, 229-231 E. Clifton Ave., Cincinnati, Ohio. Three cylinders, 4 cycle, jump spark ignition, bore 8½ in., stroke 11 in. This is a 1911 model in which the Clifton features of simplicity and accessibility are retained and a number of improvements incorporated. This model is



really of the open base construction, although cover plates are provided to completely enclose the base. Connecting rods may be taken off and piston removed without taking off the cylinders. A 65 h. p. 3 cylinder model and a 90 h. p. 4 cylinder model also come within this class, selling for $2,250 and $2,910.

Ralaco 45-50 H. P.

S. M. JONES CO., Toledo, Ohio. Four cylinders, 4 cycle, mechanical make-and-break ignition, bore 7 in., stroke 9 in., normal speed 375 r.p.m., weight 4,800 lbs. In the Ralaco engines no exhaust or intake manifolds are visible

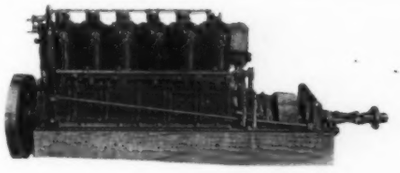


(Motor with complete equipment except piping and tank $2,300.)

as these are cast in the cylinder walls and base. Large cover plate on either side make the crank case easily accessible. The reverse gear is incorporated in the engine frame.

The 40 H. P. Lamb.

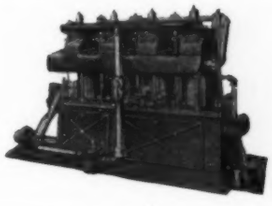
LAMB ENGINE CO., of New York, 30 Church St., New York City. Six cylinders, four cycle, jump spark ignition, bore 6¾ in., stroke 7 in., normal speed 450 r.p.m. Individual cylinders, removable cylinder heads, water by-pass



at joint, force feed oiler driven by ratchet from cam shaft, Bosch low tension magneto and make-and-break plug together with distributor and single unit coil giving a dual system of ignition. A bilge pump and air compressor for the whistle are also furnished with this model.

Murray & Tregurtha 40-60 H. P.

MURRAY & TREGURTHA CO., South Boston Mass. Four cylinders, four cycle, make-and-break ignition, bore 7½ in., stroke 10 in., normal speed 375 r.p.m., weight 4,000 lbs., turns a 36 by 42-in propeller. A 45-60 h. p. six



(Engine with electrical and propeller equipment $2,125.)

cylinder model of 6½ in. bore by 8 in-stroke turn at 450 r.p.m., weighs 3,000 lbs. and sells for $2,720. These models are both fitted with governor and air pump and have the reverse gear incorporated on the engine frame.

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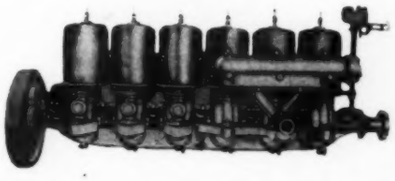
200 H. P. Pierce-Budd.

PIERCE-BUDD CO., Bay City, Mich. Six cylinders, two cycle, jump spark ignition, bore 6 in., stroke 7 in., weight 800 lbs., speed from 1,200 to 1,400 r.p.m., cylinders cast separately of gray iron, base of aluminum, water jackets of brass, ignition outfit consists

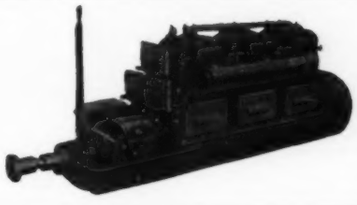


(Motor complete $3,000.)

of two Bosch magnetos and two three point Atwater-Kent Unisparkers, and a double set of spark plugs. The crank shaft is 2⅜ in. in diameter. This is a new model and contains several features new in two cycle practice.

72-76 H. P. Red Wing.

RED WING BOAT MFG. CO., Red Wing, Minn. Six cylinders, four cycle, jump spark ignition, bore 7 in., stroke 7½ in., weight 2,100 lbs. The reverse gear is incorporated in the engine frame, the gears are in operation only when reversing. The multiple force



(Motor complete with electrical and propeller equipment $2,200.)

feed system of lubrication is employed, the crank pin bearing receiving oil through a special ring oiling device fastened to the arms of the cranks. Cylinders are cast in units and are ground after being bored.

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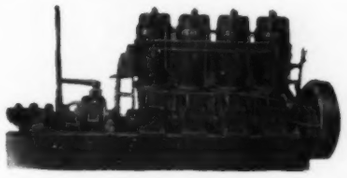
75 H. P. Remington Kerosene.

REMINGTON OIL ENGINE CO., Stamford, Conn. Four cylinders, two cycle, bore 8¾ in., stroke 8 in., speed 400 r.p.m., weight 4,000 lbs., equipment includes automatic air starting device, mechanical lubricator and reverse gear.

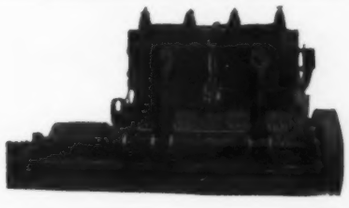


(Motor with complete equipment excepting shafting and fuel tanks, $2,170.)

In the ignition of these engines electricity is not employed and no gasoline is used even in starting. The cut herewith is of the 46 h. p. model which is very similar to the one described.

The 50-65 H. P. Standard.

STANDARD MOTOR CONSTRUCTION CO., Jersey City, N. J. Four cylinders, four cycle, make-and-break ignition, bore 8 in., stroke 10 in., speed 350 r.p.m., weight 4,500 lbs., designed for heavy full body cruisers or work boats of from 60 to 90 ft. o.a. The 40-50 h. p. six cylinder model of 6 in.

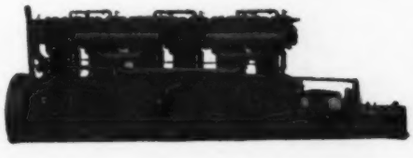


(Motor complete $2,560.)

bore and 8 in. stroke turns at 350 r.p.m., weighs 3,000 lbs. and sells for $2,400. This model was designed for fine line cruisers and work boats of light construction from 60 to 70 ft. Equipment includes large bevel reverse gear, low tension magneto, variable speed throttle governor, etc.

The 50-65 H. P. Reeves-Graef.

TRENTON ENGINE CO., Trenton, N. J. Six cylinders, cast separately, four cycle, make-and-break ignition, bore 6½ in., stroke 8½ in., weight 4,200 lbs. The 50-60 h. p. two cylinder model of 10 in. bore and 12 in. stroke,

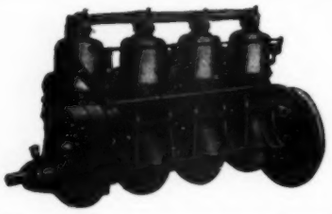


(Motor complete $2,175.)

weighs 4,700 lbs., and sells for $2,100, the 75-85 h. p. three cylinder model of 10 in. bore and 12 in. stroke turns at from 300-375 r.p.m., sells for $2,550 and the four cylinder model of the same bore and stroke sells for $3,000.

The Fox De Luxe Models.

THE DEAN MFG. CO., South Cincinnati, Newport, Ky. These motors were specially designed for speed boats and aeroplanes. The 4 cylinder shown herewith has a bore of 5½ in., stroke 5 in., normal speed 1,000-1,500 r.p.m. and weighs 400 lbs. The 90-120 h p. 6

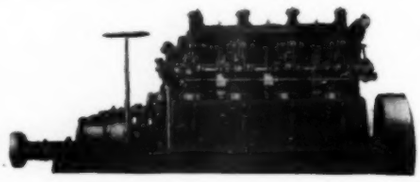


(80-100 *h. p. 4 cylinder model* $2,400; 90-120 *h. p. 6 cylinder model* $2,700.)

cylinder model of 4¾ in. bore and 4¼ stroke, turns at the same r.p.m. and weighs 450 lbs. Boat outfit, aluminum reverse clutch and rear starter may be had for $75, $200 and $40 additional, respectively.

The 60 H. P. Doak.

DOAK GAS ENGINE CO., 7-9 First St., San Francisco, Cal. Four cylinders, 4 cycle, make-and-break ignition, current supplied from magneto and battery, bore 8 in., stroke 9 in., normal speed, 350 r.p.m., crank shaft 3¼ in. in diam-



eter Equipped with sensitive throttling governor maintaining constant speed. Cylinders cast separately in one piece, pistons, inlet and exhaust valves are removable without disturbing cylinders or any other working part. All wearing parts are so designed as to admit of adjustment to compensate for wear.

Elbridge Featherweight Special.

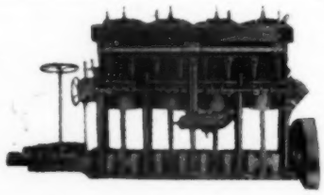
ELBRIDGE ENGINE CO., Rochester, N. Y. Six cylinder, 2 cycle, jump speark ignition, bore 4⅝ in., stroke 4½ in., speed range from 500-2,000 r.p.m., guaranteed to deliver 80-90 b.h. p. for 10 consecutive hours without deteriora-

(*With magneto ignition, automatic carbureter, reverse gear and racing stacks,* $2,300.)

tion. Weight 225 lbs., length over all 50 in., length of base 39 in., extreme height 16 in. above engine bed.

The Emerson 50-100 H. P.

EMERSON ENGINE CO., Alexandria, Va. Four cylinders, 4 cycle, open base construction, bore 7¼ in., stroke 8 in., speed range 150-800 r.p.m., weight 1,600 lbs., open base construction. A 60-70 h. p. 6 cylinder model of 5 in. bore and 5 in. stroke turns at 150-1,500

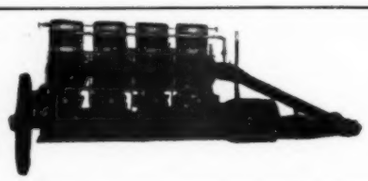


(*Motor with Standard equipment, including reverse gear,* $2,850.)

r.p.m., weighs 450 lbs. and sells for $2,300. The water jackets of both models are of nickel and copper composition and if desired the closed base construction may be had in place of the open rod frame.

The Fay & Bowen 60 H. P.

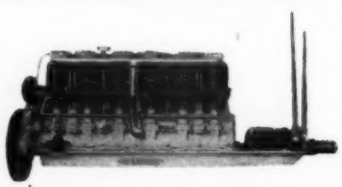
FAY & BOWEN ENGINE CO., Geneva, N. Y. Four cylinders, 2 cycle, make-and-break ignition, bore 6¾ in., stroke 8 in., normal speed 475 r.p.m., diameter of propeller shaft 1 15-16 in.,



diameter of flywheel 34 in., weight 3,500 lbs., ignition is by magneto with starting battery and equipment includes the reverse gear. Fay & Bowen motors of the convertible kerosene type may be had in sizes from 2½ to 80 h. p.

The 50-60 H. P. Speedway.

GAS ENGINE & POWER CO., & CHAS. L. SEABURY & CO., CONS., Morris Heights, New York City. Four cylinders, 4 cycle, bore 6½ in., stroke 8 in., rated 50-60 h. p., but at 820 r.p.m. develops 74 h. p. A 6 cylinder model

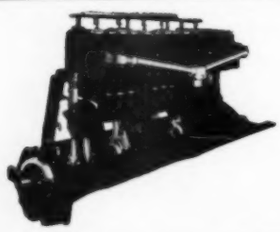


(*Motor complete* $2,400.)

of 6 in bore and 6 in. stroke is rated at 50-60 h. p., but at 820 r.p.m. develops 84¾ h. p. The price of this model is also $2,400. Both of these models employ the jump spark system of ignition and each weighs 2,100 lbs.

75-90 H. P. Holmes.

HOLMES MOTOR CO., West Mystic, Conn. Six cylinders, 4 cycle, jump spark ignition, bore 6 in., stroke 8½ in., normal speed 550-750 r.p.m., weight 2,375 lbs. Holmes motors are made with the open base construction and the connecting rod, pistons, and crank shaft

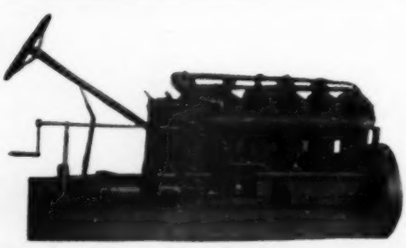


(*Motor complete with reverse gear* $2,400.)

may be removed without disturbing the cylinders. The base may be enclosed with light cover plates if desired. Reverse gear may be had incorporated in engine frame.

The 60 H. P. Jencick.

JENCICK MOTOR MFG. CO., Port Chester, N. Y. Six cylinders, 4 cycle, jump spark ignition, high speed model, bore 5 in., stroke 5½ in., normal speed 900 r.p.m., weight 975 lbs. A similar 6 cylinder model of 5 in. bore and 6 in. stroke developing 36 h. p. at 500

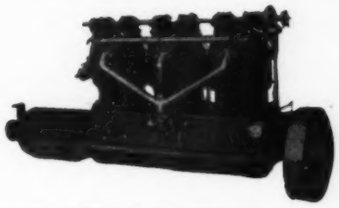


(*Motor complete* $2,100.)

r.p.m. also sells for $2,100 and a 4 cylinder medium speed model of 50 h. p. 7½ in. bore and 9 in. stroke, weighing 1,700 lbs., sells for $2,880. In all of the above models the reverse gear is mounted on the engine frame.

The Truscott 84 H. P.

TRUSCOTT BOAT MFG. CO., St. Joseph, Mich. Six cylinders, 4 cycle, valves in the head, bore 6 in., stroke 7 in., speed 700 r.p.m., weight with clutch 1,800 lbs. Has aluminum base and clutch cover. Suited for use in hulls of the express type and lightly constructed cruisers. The six cylinder

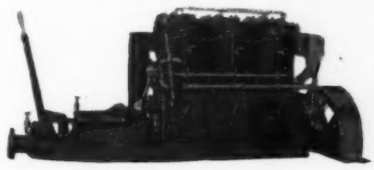


(Motor complete with high tension magneto, clutch, propeller equipment, etc., $2,100.)

model of 6 in. bore and 8 in. stroke develops 62 h. p. at 400 r.p.m. and is suited for heavily constructed cruisers and working boats. The price of this model is $2,325. The 6 cylinder model shown herewith is of the medium duty type.

The 75 H. P. Wolverine.

WOLVERINE MOTOR WORKS, Bridgeport, Conn. Three cylinders, 4 cycle, make-and-break ignition, bore 11 in., stroke 12 in., speed 300 r.p.m., weight engine only 7,000 lbs., detach-



(Motor complete $2,925.)

able cylinder heads, reverse gear incorporated in engine frame. The 65 h. p. 3 cylinder, 4 cycle model sells for $2,593 and the 50 h. p. 3 cylinder 4 cycle model sells for $2,450.

New Things for Motor Boatmen.

New Attachments and Accessories That are Offered to the Man With a Boat. The Month's Production of Devices Designed as Aids to Motor Boating.

[Under this heading will appear each month descriptions, and whenever possible, illustrations of the various devices to add to the pleasure and comfort of motor boating which have been brought out since the previous issue. It should be kept in mind that the department in any one issue is, as it were, only one month's installment of the many useful things on the market, and that it will be well to consult the previous issues of MOTOR BOATING which will form, together, a very complete illustrated directory of the things the motor boatman needs. In writing the makers of the articles shown, if our readers will mention MOTOR BOATING, they will receive special attention.]

The Hagstrom Spark Plug.

The Hagstrom Spark Plug, Hagstrom Bros. Mfg. Co., Lindsborg, Kan. This spark plug is of the usual type with the exception of a new feature consisting of porcelain guards which fit over the insulator containing the electrode and act as a protective agent to the inner insulator, not forming additional insulation, but rendering the plug less sensitive to temperature conditions by reason of the fact that all expansion and contraction take place within the guard and not reaching to the outside surface. Furthermore, the guard assists in the matter of making the plug gas-tight, thus providing for a more perfect compression.

* * *

Bristol Recording Pressure Gauge. The Bristol Company, Waterbury, Conn. This gauge is designed to meet a demand for a recording pressure gauge at a lower price than the regular standard gauge. It is made in the round form and is like the other Bristol gauges, consisting of an arm, the movements of which are controlled by the pressure. On the end of this arm is a recording pin which leaves its record on a revolving card calibrated both for pounds of pressure and for time. A notable feature of these products is their extreme simplicity of construction and comparative cheapness combined with accuracy.

Bristol Recording Pressure Gauge.

* * *

Kauffmann Brass Letters, Chas. Kauffmann, Oshkosh, Wis. A complete set of letters in many sizes and designs of a special fine finish bronze, and brass letters for names on yachts, motor boats, etc., have recently been placed upon the market by this company. These are finished in bronze or brass, gold, silver or nickel-plated, statuary bronze or oxidized copper. There are also now being made for cabin boats, small bronze tablets which are fastened to the doors, reading, engine room, saloon, galley, captain's cabin, etc.

* * *

The Sharp Spark Plug, Sharp Spark Plug Co., Wellington, Ohio. This is a recently organized company for the exclusive manufacture of these plugs. The plug is built under careful supervision for exacting service, every plug being subjected to thorough inspection and test before leaving the factory. The chief claim for the plug is that it will work under all conditions where a plug is used and where some plugs fail, and if once installed it need never be taken out of the motor.

The Sharp Spark Plug.

Lindsley & Allen Solocoil, Lindsley & Allen Electrical Co., Providence, R. I. The plug type Solocoil consists of a properly proportioned induction coil, hermetically sealed in an insulating casing designed to resist the deteriorating action of heat, water and vibration and also designed to fit over standard spark plugs. Mounted on the end of this casing is the vibrator consisting of a disc-like armature spring firmly clamped between a ring surrounding the core and a metallic enclosing cap which serves the double purpose of a support for the platinum-tipped, adjustable screw and a water-tight protection for the entire vibrator. The inner portion of the spring is in the form of a spiral vibrating tongue, supporting the armature and platinum point.

Lindsley and Allen Solocoil.

* * *

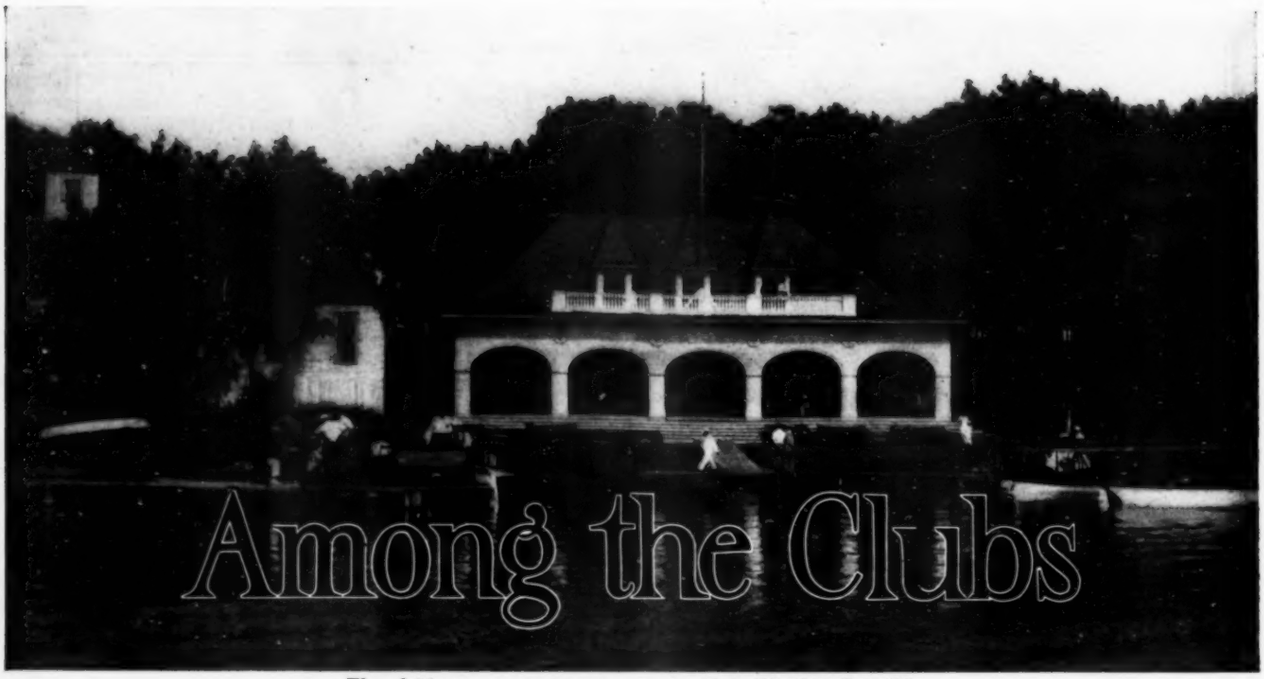
Silver King Wrench, C. M. B. Wrench Co., Syracuse, N. Y. The Silver King is a wrench combining the uses of a socket wrench, ratchet wrench and a ratchet drive. It is made of silver metal, a rust-proof substance that is said to be tougher and stronger than steel. An adjustable handle offers the greatest convenience in leverage and is comparatively simple and easy to operate. The adjustable and extension features of the wrench handle enable it to turn nuts in the most out-of-the-way places. There are fifteen sockets which are also furnished in sets, the larger consisting of the fifteen sockets with adjustable handle socket and ratchet with long and short extensions, spark plug wrench and a screw driver.

The Silver King Wrench.

* * *

Gasoline Pipe Strainer, Liggett Spring & Axle Company, Pittsburg, Pa. This simple and inexpensive device is designed to aid motor boat users who continually have to contend with water and sediment in the gasoline which clogs the carbureter and interferes with the operation of the motor. This strainer weighs but seven ounces and is ready to place in the gasoline line of the boat. Placed between the flanges at an angle across the globe is a brass wire gauze strainer through which the gasoline must pass. Any water in the gasoline must settle at the bottom of the globe beneath the straining partition and the dirt is separated from the gasoline as it passes through. The accumulation of the dirt and gasoline may be drained off through the petcock at the bottom.

Gasoline Pipe Strainer.



Among the Clubs

The clubhouse of the Pistakee Yacht Club, Pistakee Bay, Ill.

Brooklyn Yacht Club, Brooklyn, N. Y. At the annual meeting of this club, held at the Hotel Knickerbocker, New York City, William Randolph Hearst was unanimously elected commodore. Other officers were elected as follows: Vice-commodore, A. C. Soper; rear commodore, C. V. Dykeman; secretary, J. G. Faist; treasurer, Willard Graham; measurer, E. B. Schock. Commodore William C. Towen retired after three years of active service and was presented with a diamond studded aldermatic badge by the officers and members of the club. L. F. Herzig, the owner of the sloop Gardenia, has offered a valuable cup for a race for next season.

Marine and Field Club, Bath Beach, Brooklyn, N. Y. This club, which is situated in a most desirable location on Gravesend Bay, was incorporated in December, 1885, although only recently have its members given any serious attention to motor boating. On the first of January of last year the club membership numbered only 103 persons, but this has been increased to 151 at the present time. The club property, consisting of 270 feet of waterfront and including three houses used for club purposes aside from the boathouse, is to be greatly improved during the coming year. Poor service facilities from Manhattan have kept the club from growing as it otherwise would, but the attention of the members is now centered upon securing water transportation to New York City With this end in view plans are being made tor a pier, to be built in such a manner as to afford a protected anchorage and to furnish a landing-place for the morning and evening boats from Seagate. The club is planning for a large trap shooting season during the winter.

Cobweb Yacht Club, New York City. This club, which is one of the oldest along the Hudson, is now building an extension to the house, which will be used as a dancing pavilion and billiard room. The following officers were elected at the annual meeting: Commodore, Andrew Gangloff; vice-commodore, T. G. Brophy; secretary, S. L. Keller.

Williamsburg Yacht Club, North Beach, Flushing Bay, L. I. At the last monthly meeting of this club the following officers were elected for the ensuing year: Commodore, John G. Wilson; vice-commodore, William J. Coen; rear commodore, H. F. Baxter; treasurer, A. G. Rau; financial secretary, F. L. A. Schwartz; corresponding secretary, William S. Richards. The club is just entering upon the 40th year of its existence, and preparations are already being made for next season's activities.

The American Power Boat Association. At a special meeting of this Association, held at the Waldorf-Astoria a short time ago, a number of important changes were made in the rules governing racing and cruising. It was decided by unanimous vote that hereafter all boats shall be weighed upon scales to be provided at various inland and coastwise ports instead of being measured, as has heretofore been the custom. Three limited classes were established, as follows: First, boats 21 feet over all, that must weigh 1,600 pounds; second, boats 26 feet over all, that must weigh 2,100 pounds; and third, boats 32 feet over all, that must weigh 2,900 pounds. There is also to be a restricted volume to the cylinders, and Class AA racing boats will be weighed without the crew, 300 pounds being added for this allowance. It was recommended that boats be started according to their handicaps, so that the first one to finish would be the winner. According to the latest report of the Association, the membership is 25,000, representing 106 clubs and additions are being made at the rate of one a week.

Bangor Yacht Club, Bangor, Me. At the annual meeting of this club Fred A. Porter, one of the founders of the organization and commodore for the past two years, was again chosen as the chief executive officer. Other officers were elected as follows: Vice-commodore, E. R. Adams; rear commodore, C. L. Clark; treasurer, H. M. Pierce; secretary, N. V. McLean. It was decided to hold the first cruise of next season upon Memorial Day and to hold the annual cruise upon July 4. A committee was appointed to make arrangements to have all future races conducted under the rules of the American Power Boat Association.

Baltimore Motor Yacht Club, Baltimore, Md. The following officers were recently elected for the ensuing year; President, W. F. Broening; commodore, C. B. Slagle; vice-commodore, A. S. Zell; rear commodore, Dr. T. J. O'Donnell; vice-president, C. W. Winters; secretary, R. W. Broome; treasurer, W. H. Hellbach. A resolution was adopted providing that the club co-operate with other organizations for the construction of a boulevard from the center of the city to southern limits.

Motor Boat Club of America, New York City. Officers for 1911 have been elected as follows: Commodore, H. H. Melville; vice-commodore, H. F. Burnham; rear commodore, J. S. Blackman; secretary, F. M. Morely; treasurer, Charles Francis; trustees, A. E. Smith, August Heckscher, J. H. Hoadley, J. M. Shaw, C. P. Tower, H. R. Sutphen, F. G. C. Lyon, H. A. Pell, E. J. Steiner and M. M. Whittaker. The constitution was so amended as to provide for 15 trustees instead of 11 as heretofore.

Dubuque Power Boat Association, Dubuque, Iowa. Commodore St. Claire Ede, of this club, is busy making arrangements for the regatta of the Mississippi Valley Power Boat Association, which will be held under the auspices of the Dubuque Power Boat Association, next June. The regatta which was held last summer at Peoria attracted 20,000 persons to that city, and indications point to an even greater amount of interest next year.

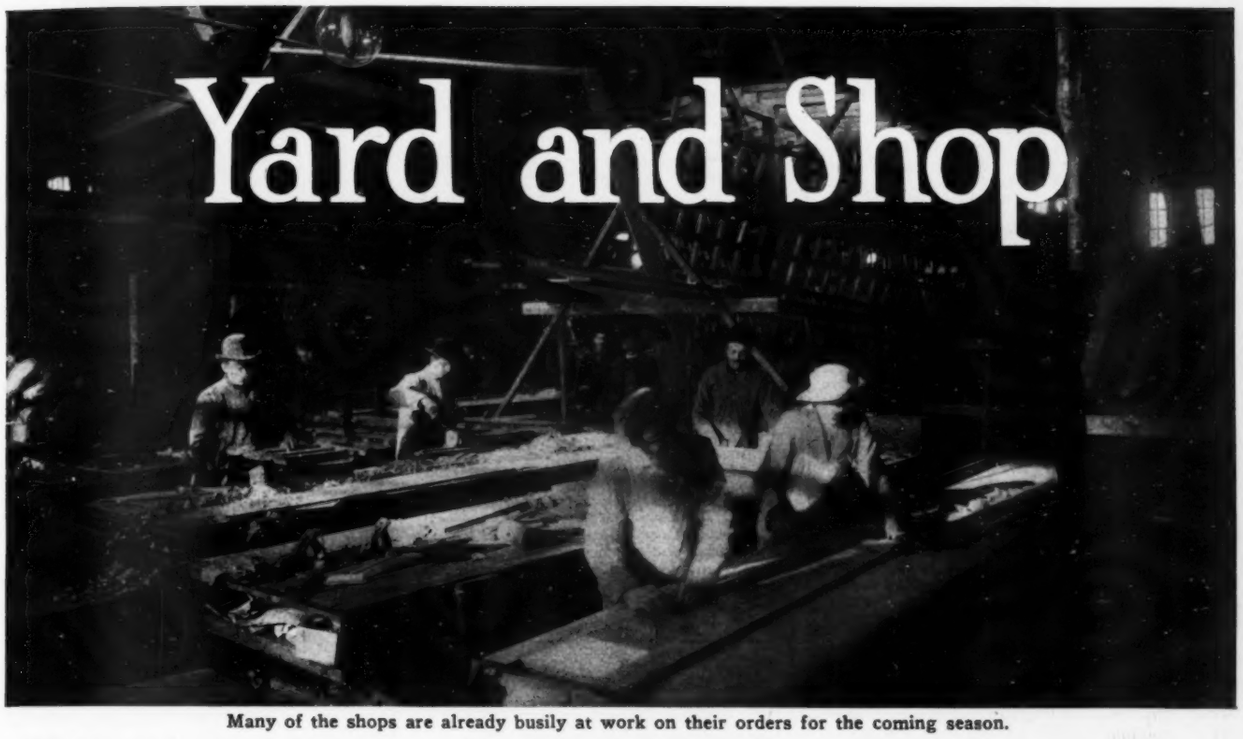
New York Motor Boat Club, New York City. At the annual meeting of this club, which was held upon the first Friday in December, the following officers were elected: Commodore, A. T. S. Clark; vice-commodore, E. E. Barney; rear commodore, C. F. Chapman; treasurer, Arthur Bradley, Jr.; secretary, E. J. Polhamius. These officers, in addition to George Gray, Jr., form the board of governors. It was decided to hold the annual ball and vaudeville entertainment upon the 21st of February.

Illinois Valley Yacht Club, Peoria, Ill. The following roster of officials was elected by the Illinois Valley Club of Peoria at their annual meeting on Monday evening, November 14. Two hundred men attended the election and the rivalry for some positions was intense: Commodore, A. T. Griffith; vice commodore, Robt. Scholes; rear commodore, H. E. Chubbuck; secretary, Guy Goodfellow; treasurer, J. N. Gift.

Audubon Yacht Club, New York City. At a recent meeting of this club the following officers were elected: Commodore, Ralph Croft; vice commodore, P. H. Ohm; rear commodore, Alfred Russell, Jr.; secretary, G. B. Demarest; treasurer, C. H. Leyton; trustees, Wm. F. Mannheim, Warren Weaver, H. L. Oliver.

Pistakee Yacht Club, Pistakee Bay, Ill. At the annual meeting of this club the following officers were elected, all of whom are residents of the city of Chicago: Commodore, James A. Puch; vice commodore, James E. Baggot; rear commodore, William P. Lawton; fleet captain, Harry E. Hoff; secretary, Frank L. Pasdeloup; treasurer, Fred L. Wilk, Sr.; judge advocate, William A. Small; fleet chaplain, Harry C. Wilson; fleet surgeon, Dr. F. E. Wadhams. The meeting was enlivened by the burning of a mortgage of $2,000 on the present clubhouse by Henry L. Hertz, the father and first commodore of the club. A magnificent chest of silver was presented to Commodore James A. Pugh as a token of esteem and friendship and as a small reward for his untiring effort and energy to make the past season the most successful the club has ever had.

Yard and Shop



Many of the shops are already busily at work on their orders for the coming season.

The Founding Company of America has recently acquired all the stock of the Hudson Yacht and Boat Company, which conducts the business of what was for many years the shipyard of Samuel Ayers & Son, and plans are now under way for a general improvement and enlargement of the plant which will specialize as formerly in the construction of power craft.

The Sterling Engine Company, of Buffalo, have found it necessary to make additions in their already large plant, and among the important improvements is the new testing room. The department has a capacity for testing fifteen engines at one time under actual running conditions. The motors are first run light in order to make the necessary adjustments, and are then coupled to hydraulic water brakes which approximate the conditions to be met with in actual service.

The Jefferys-Dewitt Company, makers of the Jeffrey-Dewitt spark plugs, have for some time featured also their line of porcelain insulation which they not only make for their own use, but are now supplying to a number of other spark plug manufacturers.

Charles E. Miller announces the removal of his Brooklyn branch from 1392 Bedford Avenue to larger quarters at 1421 Bedford Avenue. The new store is completely stocked with motor boat accessories, and is one of the largest motor boat suppply houses in the city of Brooklyn.

The Krice Carbureter. On November 22nd papers were issued granting patent on the Krice carbureter. During the seasons of 1908 and 1909 extensive experiments were carried on with this carbureter and during the last season many of them were used throughout the country. One of the distinguishing features of this carbureter is the method of spraying gasoline into the mixing chamber by means of a long, thin, circular opening. By this means the gasoline instead of being delivered into the mixing chamber in a solid jet is injected through an opening about 8/1000 of an inch in diameter. The air in passing through the mixing chamber comes in contact with the thin film of gasoline on its walls and almost immediately vaporizes, making a dry thin mixture, most efficient for combustion.

Henry C. Squires' Sons, the eastern representatives for the Ferro Machine & Foundry Co., are now located in larger quarters in the Hudson Terminal Building at 30 Church Street, New York City. For many years this concern has been located at 44 Cortlandt Street, where they have carried, besides their large line of general sporting goods, a number of different boats and Ferro engines and their rapidly growing business has made it necessary to secure larger quarters, and they now occupy the largest store in what is probably the largest business building in the world.

The Roper Safety Propeller. Relative to the discussion on bulkhead control in this issue the Roper propeller might be mentioned as a device that adds materially to the ease of one man control. It does away entirely with the necessity of throttling when the boat is brought to a standstill, and makes the control absolutely positive and perfectly simple, insuring not only a one man control boat, but actually a one hand control boat.

Palmer 1911 R-3 Motor. The new Palmer R-3 is a three-cylinder, four-cycle machine with mechanically operated intake valves and is supplied with either make-and-break or jump spark ignition, or both, if desired. The bearings are of Parson's white bronze, die cast and interchangeable; the crank shafts and crank pin bearings are two inches in diameter and amply long; the crank shaft is of nickel-steel, the piston pins are hardened and ground and the piston bushings are of phosphor bronze. A new model is rated at 15-18 h. p. at 460-650 r.p.m., and sells, with jump spark ignition, for $475.

The Gasoline Engine Equipment Company. Mr. Clayon Von Culin formerly with the Ferro Machine & Foundry Company, and who during the past year has been manager of the New York office of the Lackawanna Mfg. Company, and Mr. Wilbur H. Young, formerly general agent for the Lackawanna Mfg. Company, have organized the Gasoline Engine Equipment Company and have leased two entire floors at 123 Liberty Street, New York City. Their stock includes boat builders' supplies and a complete line of all sizes and types of gasoline engines.

The Buyer's Reference Number of MoToR BoatinG which appeared in December was considerably larger than anything we have yet undertaken, and in compiling the immense amount of matter for publication a few errors naturally occurred. For instance in the write-up of the Columbian Brass Foundry of Freeport, L. I., it was stated that this concern built the propeller with which Dixie II is equipped. It seems that the writer of this particular

A trim raised deck cruiser recently completed by the Niagara Motor Boat Co. of North Tonawanda, N. Y.

paragraph was over-enthusiastic about the Columbian propellers, and we correct the misstatement at the request of the Columbia Company.

On page 75 the writer of the article on Jeffrey's Patent Water-proof liquid glue was also a little over-enthusiastic in endowing it, among other virtues with the adaptability for use in seams in deck planks which it seems is one of the few things for which Jeffrey's Patent Water-Proof Liquid Glue cannot be used.

On page 9 the cruiser marked number 5 was referred to as a Matthews cruiser with flush deck aft, but we and every one else know that it is Leonora, built by Frederic S. Nock for Mr. John Atkins, of New York City.

In the Trade Directory the Mathis Yacht Building Company's address was given as Clinton, Ohio. This we must charge to a linotype man who seems to have astigmatism or to a proofreader with failing eyesight. As is pretty well known in the motor boat world, this should have been Camden, N. J., and no great harm, we believe, was done.

Bluff City Boat Company. On page 44 of the December issue appeared the design of a runabout which was credited to the Bath Marine Construction Company. We are sorry to say that this was an error as the design was kindly lent us by the Bluff City Boat Company of Stillwater, Minn. On page 5 it was stated that Geo. Crouch designed the runabout which was built by this same company. This boat was both designed and built by the Bluff City Boat Company.

Cox & Stevens of 15 Williams St., New York City, have published an interesting folder containing a lot of valuable information and estimates of expense for the building, buying, chartering, and running of various types of yachts, and also a page of general information of value to every motor boatman. In this folder are considered the cost new, cost second hand, cost to run or charter, cost of fuel, wages, food, etc., etc., for ten different types of yachts gathered from the wide experience of these designers.

New Bridgeport Motors. The accompanying illustration shows the new Bridgeport semi-speed 15-20 h.p. motor. In general construction the principal features characteristic of Bridgeport motors have been retained in this model. The cylinders are cast separate and assembled on a one-piece iron bed making a very rigid whole and assuring alignment of bearings. The large hand hole plate and removable heads make possible the removal of any piston and connecting rod without disturbing the other cylinder. The cylinder heads are completely water jacketed, as is the exhaust outlet. Ignition of the semi-speed models is by the jump spark method, the timer being of the vertical type operated through spiral bronze gears making it noiseless in operation. A rear starting device is provided when the motor is to be installed forward.

A two-cylinder motor of the same type is also furnished. It is rated at 10-12 h.p. and like the other model runs normally at 600 r.p.m., although capable of as high as 1200. The 1911 medium-speed Bridgeport motors will be single cylinder, 3 h.p., 4 h.p., 5 h.p., 7 h.p., and 9 h.p. models; two-cylinder 6 h.p., 8 h.p., 10 h.p., 14 h.p., 18 h.p., and 27 h.p.

The Havoline Oil Company have made arrangements with the Indian Refining Company whereby the latter are acting as distributing agents for Havoline lubricants. The Havoline Company has taken new offices at 133 William St., New York City.

The Connecticut Telephone & Electric Co., of Meriden, Conn., are now distributing a new 1911 catalogue covering their well-known motor boat ignition specialities. This catalogue describes the New Connectitcut magneto in detail and gives a concise description of the various systems for which it is made. Other new types for 1911 are the hinged bracket spark coils, magneto lock switch, new type steering wheel switch, 1911 pocket meters and Connecticut auto lock.

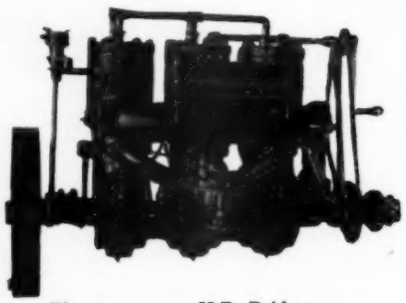
1911 Shows.

BOSTON: **January 28th to February 4th, 1911.** National Motor Boat and Engine Show, to be held in Mechanics' Building. This is the only exhibit in Boston sanctioned by the New England Engine and Boat Association. Manager, Chester I. Campbell, 5 Park Square, Boston.

NEW YORK: **February 21st to March 4th, 1911.** Annual Show of National Association of Engine & Boat Manufacturers, to be held in Madison Square Garden. Manager, Capt. J. A. H. Dressel, 138 West 42nd St., New York City.

BUFFALO: **March 25th to April 1st, 1911.** Fourth Buffalo Power Boat and Sportsmen's Show to be held at the 65th Arsenal, under the auspices of the Buffalo Launch Club, Dal H. Lewis, manager. The exhibition will not be open upon Sunday.

MONTREAL: **April 1st to 8th.** Automobile and Motor Show to be held under the auspices of the Automobile and Aero Club of Canada in Coliseum Building. Manager, E. M. Wilcox, 123 Bay St., Toronto.



The 1911, 15-20 H.P. Bridgeport.

Vanguard Motors.

Vanguard motors are unique in that although they operate on the two cycle principle they are of the open base construction. Instead of water-jacketing the whole length of the cylinder, a division is placed at the ports, the lower half, between the cylinder walls being utilized as a mixing chamber. As the piston ascends closing the intake port on the inner wall the vacuum draws the charge from the carbureter up through the manifold, by the check, down between the walls of the cylinder and up under the piston. As the piston descends the check closes, preventing this initial charge which has just been taken in from returning to the carbureter, and compresses same in the space between the walls.

On the downward stroke of the piston, the exhaust port uncovers, giving vent to the explosion. Then follows immediately the uncovering of the intake port by the piston being now at its lowest stroke. The primary charge having been properly prepared is forced through the intake port, striking a deflector on the piston head and ascending to the top of the cylinder for terminal compression.

Bow and Stern Types.

(*Continued from page* 45)

its proper employment is in motor yachts of above the average size. In such craft the greater length and buoyancy of the hull prevent the excessive squatting so noticeable in the smaller cruisers equipped with motors of relatively greater power and turning wheels larger in proportion to the boat's displacement.

The modified Normand V-stern, while of an eminently seaworthy form (provided the quarters are not too heavy and the stern post is given a sufficient degree of rake), is still buoyant and full enough to check the tendency to squat unduly, and permits the vessel's run to be carried out along lines of minimum resistance. At the same time this form of stern gives room for a commodious cockpit and a good-sized after deck, with very acceptable storage space beneath it. The usual lazy back seat across the after end of the cockpit is one of the most popular lounging places on the boat, and in cruisers with sterns of the Normand V pattern this seat will often accommodate three or four persons in comfort.

Such a stern admits of backing in any reasonable seaway with safety and comfort and in running before a heavy following sea its buoyant qualities and general form make it one of the safest designs in use. It leaves the water with little drag or other unnecessary disturbance, and finally—a point that is no mean consideration for many of us—it is one of the least expensive sterns to build, as well as one of the strongest structurally. The plain transom stern is perhaps even a trifle simpler to build, but is not so desirable for outside work.

The desirable hull then, for a cruiser of moderate size and average service, is one with a nearly or quite plumb stem, sharp upon the waterline, but flaring quite sharply above it to a full forward deck line and showing ample freeboard all around. Aft she should have a transom of the modified Normand V type, with sharply raking stern post and moderately high quarters. A slight tumble home aft, while not materially beneficial, renders the stern lighter and more pleasing in effect. Such a hull is alike smart in appearance and efficient in service and possessing no freakish features should be "in style" for many years.

ALLAN O. GOULD, Portland, Maine.

An 18-foot tunnel stern hunting and fishing boat just completed by the Gas Engine and Power Co. and Chas. L. Seabury and Co. Cons. for Carl G. Fisher, of Indianapolis.

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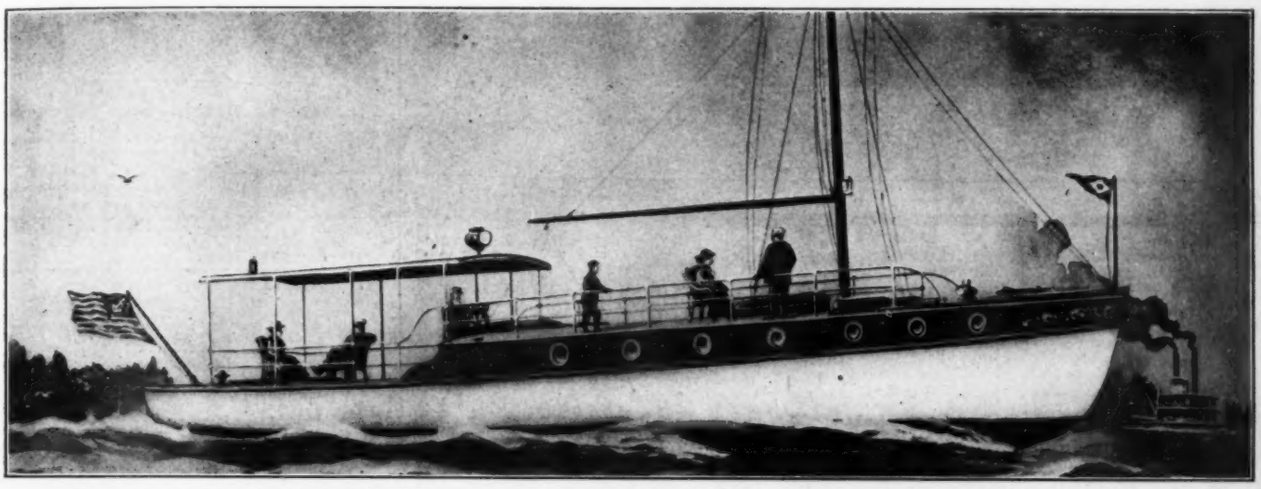
Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention **Motor Boating.**



WINTER CRUISE IN FLORIDA WATERS.—We have 45 x 9 ft. raised-deck cruisers designed especially for lake, river and gulf cruising. Ready for immediate delivery. Full equipped. SALT WATER fittings throughout. Four-cylinder engines. HULL planked with WHITE CEDAR; finished in solid MAHOGANY. Individual berths fitted with finest quality cushion mattresses. Fine GALLEY and TOILET, RANGE and REFRIGERATOR. The smoothest running and best handling boat on the market. SPARKS BOAT & ENGINE CO., ALTON, ILL.

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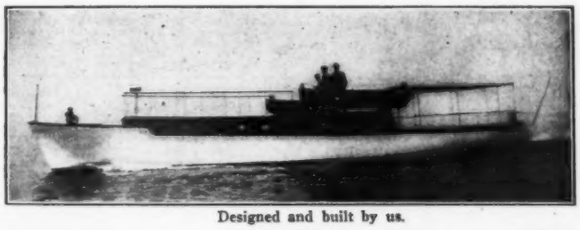

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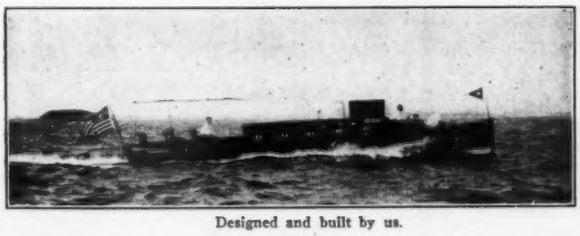

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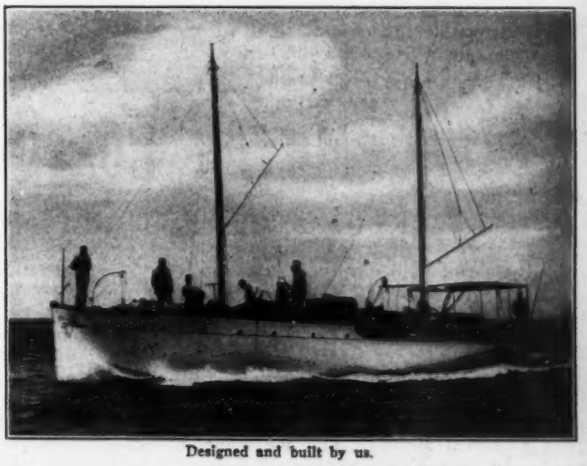

Designed and built by us.

Twenty-five and thirty-five foot service launches. Cost moderate, serviceable, strong, seaworthy and always reliable. Bargains.—A large number of carefully selected second-hand yachts are listed in our brokerage department. Marblehead Green—Absolutely Anti-Fouling. Stearns & McKay Co., manufacturers, Marblehead, Mass. Send ten cents for catalogue.

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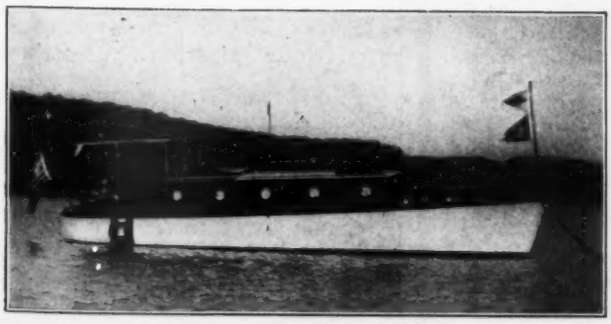
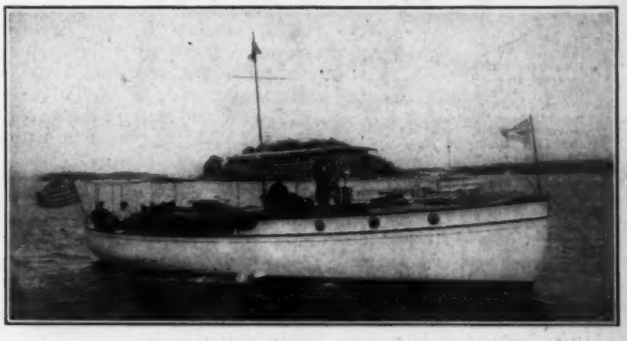


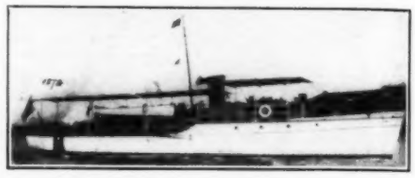
No. 864.—40 ft. x 8 ft., 4 in. x 3 ft.; speed 11 miles. Address Manning's Yacht Agency, Whitehall Building, 17 Battery Place.



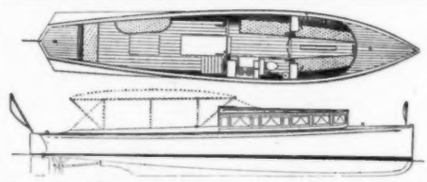
No. 1032.—55 ft. x 50 ft. x 11 ft. x 2 ft. 6 in.; speed 12 miles. Address Manning's Yacht Agency, Whitehall Building, 17 Battery Place, New York City. Telephone 2958 Rector.

When writing to advertisers please mention MOTOR BOATING, *the National Magazine of Motor Boating.*

No. 1116.—For Sale—Raised deck cruiser, 40.6 x 9.6 x 3 ft.; launched 1910; speed 10 miles; 24 h. p. motor; stateroom, saloon, etc.; offer desired. Cox & Stevens, 15 William St., New York.



No. 487.—Bargain—70 x 13.9 x 3.6 ft. twin screw power yacht; Standard engines; very roomy, able and in excellent condition. Cox & Stevens, 15 William St., New York.



No. 943.—New 38 x 6 ft., sneed 12-14 miles; 30-45 H. P. Sterling. Apply to Cox & Stevens, 15 William St., N. Y.

Please mention MOTOR BOATING.

Another Answer to the 2nd Question.

THE bulkhead controls of a runabout may easily be arranged as conveniently as those of an automobile. For one-man control it is necessary that these controls be accessible and a little planning is all that's needed to place everything under one's hand. In the first place, make the bulkhead removable so that the motor may be got at quickly for temporary adjustment or repairs. Build the bulkhead of sheathing secured with cleats or of panels fashioned so the whole thing may be lifted up and withdrawn after fixtures have been disconnected.

The bulkhead should be placed about one foot abaft the rear cylinder of the motor which position gives ample space to do considerable monkeying with wrenches, even when the bulkhead is in position. Have the top of the bulkhead crowned so as to receive the under side of the hood that should protect every motor used for marine work. Runabouts, particularly those that "go some" throw water aboard and water isn't a good thing for propelling machinery even if it does no more harm than leave a coating of rust or salt or sets the magneto skipping. The steering wheel may be the orthdox sort that screws against the bulkhead or the auto steerer now much esteemed by owners of tidy, speedy boats. The horizontal wheel of the auto type may be set raking with its post passing through the bulkhead at an angle with the rack and pinion to which are fastened the tiller lines just forward the bulkhead.

With the steering wheel in position on the bulkhead the spark and throttle controls should be installed, usually about the center of the bulkhead, vertically, and a trifle to the left of the wheel post. The levers, on a compact base, may be purchased cheaply at almost any house dealing in marine supplies, and all that is required to connect them are short lengths of brass rod of about 3-16 in. diameter. To the right-hand lever attach the rod leading to the throttle-arm by means of the holes drilled to receive the ends. These ends may be threaded to take a nut or slightly burred to prevent their pulling through. The threads and nuts are perhaps best because slack may be taken up by setting the nuts a bit tighter. The other rod connects the timer-arm or the make-and-break device with the second lever of the control, and it is wonderful how the rods may be bent or curved to carry them by projections such as manifold or intake pipe.

There remains little else to do except attach the pressure oil feed on the forward side of the bulkhead with the glass gauge or tell-tale on the after side where it can be readily seen. This gauge should go on the starboard or port side of the bulkhead according to the ease with which the tank can be installed. The reversing lever may easily be extended by means of pipe or rods to a position against the bulkhead or beneath the knees of the operator when he is seated on the cross seat built 20 inches or so abaft the bulkhead. It is mighty convenient to be able to work a clutch with one's knee, sometimes; it gives the runabout a flexibility worth while and enables one to use both hands at the wheel when quick manœuvre is imperative.

Mount the switch, a two-way for battery or magneto, either on the wheel post or the bulkhead. It is a very good plan to protect the switch from flying water by a waterproof hood, if on the steering wheel, or by a projection above and around it if installed on the bulkhead. Place the whistle-tank gauge on the left-hand side of the bulkhead, if that is convenient, and carry the line from the whistle lever by means of fairleads to the steering wheel or down to the bottom boards a few inches abaft the bulkhead, where it may be attached to a foot lever, after the manner employed in operating the cut-out of automobiles.

HALVE MAENE, Boston, Mass.

HERE'S the Anderson Engine you've heard so much about; so much about its speed-stability.

We can quote you any number of experts, any number of motor-men who have been clear through the mill on this question, and who alone tell you point blank that the Anderson Engine is the only engine for the man who takes into consideration "the factor of safety."

It's a high-grade up-to-date mechanism. Staunch, strong, smooth running, clean action all through. It's the engine that stands the strain. **Does** more without **costing** more; spells **service** to you; **service, satisfaction** and **saving**—all three—in one.

You'll be interested in our catalogue; tells lots you ought to know about motors—what to look for and what to look out for in motors.

ANDERSON ENGINE CO.

SHELBYVILLE, ILL.

MERCURY FOR 1911

Mechanically Perfect

Superiority in design and construction for which Mercury Motors have stood for many years, and standards of equality and reliability which have been synonymous with Mercury success, have been continued in their offerings for the season of 1911. For the ensuing year these motors will be built in six models.

6 HP single cylinder	30 HP four cylinder	60 HP four cylinder
14 HP two cylinder	40 HP four cylinder	100 HP six cylinder

ALL FOUR CYCLE

The Mercury is the consistent superior of superior motors. Gunfire II. won the Ellicott Cup at Ossining, New York, Labor Day; also first prize in 20 mile Auto Boat Class. Dell, owned by Mr. James Cassidy, finished first in the New York-Peekskill Race, distance sixty miles, equipped with 25 H. P. Mercury. Write for Mercury Book.

MERCURY MOTOR CO. Factory, LONG ISLAND CITY, N. Y.
PRODUCE EXCHANGE, NEW YORK CITY

BUILD YOUR OWN BOAT

Buy a frame, do the work yourself from our patterns and instructions and save three-fourths the cost. Hire local carpenters and save at least half the cost of the same boat if purchased at any yard or factory. Our designs are the best.

Send for our catalog which tells you all about it

De FOE BOAT & MOTOR WORKS
2323 South St. Bay City, Mich.

Notice to Engine & Foundry Works

You can secure a complete set of patterns, jigs and patents all complete for an established line of high grade marine engines rated from 2 to 25 H. P. Will arrange reasonable sale of patterns and everything complete to work, all together with established trade connections. It is a special opportunity as one of the best marine engine works requires entire space and time for other lines. Investigate this at once by writing Motor Boating, Box 44.

New York Office: Hudson Terminal Bldg., 30 Church Street

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GAS TANKS

Prest-O-Carbon Remover

THE PREST-O-LITE CO.,
260 E. South St., Indianapolis, Ind.

TROUT WHEEL

Two, Three or Four Blade. For Speed Boats or General Service.

Adopted by the Foremost Engine Makers of the Country.

H. G. TROUT COMPANY, BUFFALO, N. Y.

PIONEER BOAT & PATTERN COMPANY

Builders of

Fine pleasure craft and manufacturers of Pioneer Perfect Boat Frames and Boat Material.

Send 10c for Large Catalog

Wharf 450 BAY CITY, MICH.

DIRIGO OIL COMPASSES

are supplied with the **Navy Degree Circle on dial,** and have other distinctive features. Send for catalogue and ask about the **Dirigo Electric Compass Light.** Manufactured by

TRADE DIRIGO MARK
EUGENE M. SHERMAN, Reade St., Lexington, Mass.

SIRENO

(MARINE TYPE)

Electric Warning Signals and Accessories

The SirenO Co.
1705 Taylor Bldg. New York, U. S. A.

Strelinger Marine Engine

BUILT EXPRESSLY FOR HARD SERVICE

Send for free catalog today

The Strelinger Marine Engine Co.
171-175 Woodbridge St., West, Detroit, Mich.

Agents Wanted

LEYARE BOAT WORKS

Builders of High Grade Racing and Cruising Motor Boats

Builders of Thousand Island Yacht Club One-designed Boats

MARINE RAILWAY *WINTER STORAGE*

Twenty-five years experience boat building

WORK GUARANTEED

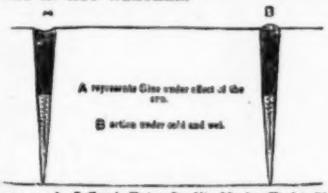
Build on orders only. No Catalogue. Order Now for 1911.

LEYARE BOAT WORKS, Ogdensburg, N. Y.

APPLICATION OF MARINE GLUE TO DECKS

The reduced Section of Deck (see cut) shows the appearance of the Glue in the seams when the planks are under expansion and contraction. The flexibility of the Glue is one of its most valuable qualities, as it allows the timbers to contract and expand, still retaining its great adhesive power to the edges of the plank.

When the planks become contracted by the heat a draught takes place on the Glue, and the seam becomes expanded, as shown at A. When the planks are swollen by rains and there is a pressure on the Glue, the seam becomes contracted, as shown at B. As the temperature varies, these forms, A and B, continue to assume each other's shapes year after year (if the deck has been properly caulked and payed) until the deck becomes worn down to the Oakum. IT DOES NOT STICK TO THE FEET IN HOT WEATHER.



Fourteen pounds Jeffery's Extra Quality Marine Yacht Glue will run from 200 to 250 ft. of seam three-quarter in. deep by one-quarter in. wide. If properly used and not over-heated, it will last four to six years in a seam, and has been known to last ten to twelve years. When carefully applied to a dry deck it will never leave the sides of the seam.

Send for directions for use, etc.

L. W. FERDINAND & CO., 201 South Street, BOSTON, MASS., U. S. A.

STICKIT

on board! It's the most compact socket and ratchet wrench set made and it only costs $3. Fits 11 different sizes of nuts. Size just right for your tool roll. Price just right for your bill roll. Extra sockets any sizes desired, five on a ring for $1. Send for circular..

—Geo. A. Cutter, Sales Agt., Taunton, Mass.—

Caco Air Whistles

USE LESS AIR AND MAKE MORE NOISE THAN THE OTHERS

Ask your dealer for a Caco!

Air Compressors, Tanks, Whistles and Fittings of all kinds for the Motor Boat

Send for our Marine Catalogue No. 81

GLEASON-PETERS AIR PUMP CO. (Dept. A)

255-263 CLASSON AVE., BROOKLYN, N. Y.

Marine Paints & Specialties

Elastic Seam—Compositions; Elastic Flat Yacht White; Elastic Glass Yacht White; Elastic Special Bright Green Copper Paint; Elastic Special Bright Red Copper Paint and Elastic Bright Green Boottopping. Send for list of firms carrying our goods and for catalogue to

H. B. FRED KUHLS, Sole Manufacturer

Office and Works: 3d Ave. & 23d St., Brooklyn, N. Y., U. S. A.

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LOBEE PUMP

Lobee Pump & Machinery Co.

57 Bridge Street Buffalo, N.Y.

-POLARIS-

COMPASSES and BINNACLES

Standard quality and absolutely reliable. Write for our catalog and prices.

MARINE COMPASS COMPANY

BRYANTVILLE, MASS.

Build Well Boat Satisfaction

Build a boat as you would a house,—to minister to your comfort and pleasure. It costs less to do things right, besides saving much annoyance and discomfort.

Our free booklet treats of the relation of motor to hull and illustrates quick, accurate method of installing motor. It marks the path to true economy and real satisfaction.

Beautifully illustrated marine specialty catalogue and marine hardware supplement are yours for the asking. Ask now.

Mechanical Devices Co.

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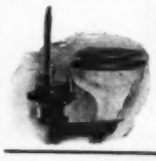
Coates Marine Outfit For Drilling Grinding and Buffing

COATES CLIPPER MFG. CO.

Worcester, Mass.



MARINE WATER CLOSETS

for either above or below the water line. Simple, easy to operate, suitable for heavy work or owner's room. Will outwear any other closet made.

Write for catalog.

J. H. CURTISS CO.

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With my patented Outboard Connections anyone can safely and securely install this closet. Closet only $25.00. Outboard Connections with hose and clamps $5.00.

GUS. A. DIEM

Formerly CURTISS COMPANY

20 Fulton Street New York City

We are the only manufacturers of

Metal Hinged Valve Closets

They work easier, last longer, and require less care than any other closets on the market.

Send for our 1911 Catalog.

Goblet-Dolan Co.,

32 Old Slip, N. Y.

POSITIVE AUTOMATIC

Carburettor G & A

No Adjustments Reliable

No Springs Automatic

Write for Booklet

A. HERZIG, Agent,

1777 Broadway, New York City

Hopkins

Motor Boat and Yacht Outfitters

Motorboatmen and Automobilists should not be without the **Pocket Battery Ammeter.** Sent anywhere, postpaid, $1.00.

Indispensable for Testing Dry Cell Batteries

Send for our big 1911 Catalog 119 CHAMBERS ST., N. Y.

NOTICE—

We manufacture and carry in stock a complete line of

Brass Fittings Propellers

Under Water Exhaust Connections

and all other boat supplies.

It will pay you to send for our 1910 catalog Free upon request.

CHAS. KAUFMANN, Oshkosh, Wis., U. S. A.

KOVEN GASOLINE TANKS

For Gasoline, Air for Whistles, Oil, Water, Mufflers, Condensers, etc. Heavy sheet iron and plate steel work of any shape desired. Galvanizing of all kinds of boat work.

L. O. KOVEN & BRO.

52 Cliff Street New York City

"Velos Model I Distributer"

Improved power. Perfect ignition. Only one coil. Simplified wiring. Low cost. Discard your timer and trouble at the same time, and get an up-to-date Igniter. Guaranteed.

Philadelphia Timer and Machine Co. 331 Vine St., Philadelphia, Pa.

NIAGARA

AUTO-MARINE STEERING CONTROL

Made of solid bronze, highly polished. Rim of solid laminated mahogany. Spark and gas controls are within wheel and at finger-ends.

Eclipses All Other Controls

Write for Particulars.

NIAGARA GASOLINE MOTOR COMPANY

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BUFFALO, N. Y.

Nothing External Revolves

DETROIT REVERSE GEAR

Starts—Reverses—Stops INSTANTANEOUSLY

All working parts submerged in oil bath at every revolution.

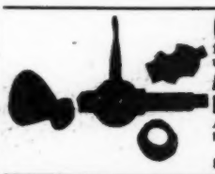
The Simplest, Most Reliable, Most Compact

and the Smallest Perfect Marine Reverse Gear ever offered. No outside moving parts to throw the oil or grease, tear the skirts, bruise the hands or catch waste. No noise. Manufactured in sizes for from 2 to 30 H. P.

We carry all sizes in stock for immediate shipment. Guaranteed for one year. Write for special prices and free catalog. Valuable information from our Consultation Department FREE to motor boat men.

(40)

Detroit Engine Works, 14 Beaufait Ave., Detroit, Mich.



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from your Boat and Motor by using the Best Pusher, viz:

A GORDON Adjustable Blade Propeller

Agents wanted in boating centers

THE GORDON PROPELLER CO.

8003 Desmond Ave., N. W., Cleveland, O.

ANTI-CRANK

LACKA-MOTORS

½ to 45 H. P. for all boats. THE WORLDS SIMPLEST Installed Operated by anyone. Complete Outfits ready for Rowboat or Schooner. GUARANTEED. TWELVE YEARS building, perfecting, success with THE ONE TYPE. Write to Originators of VALVELESS for new "MARINE BOOK" a liberal Educator to all, free.

LACKAWANNA MFG. CO. 64 CLINTON ST. NEWBURGH N. Y.

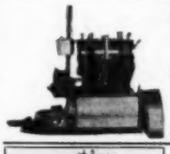
Engines for All Purposes

Vertical and opposed four cycle, from 6 to 50 h. p.

CATALOG FOR THE ASKING

MILLER BROS.

2331 N. Talman Ave., Chicago, Ill.



20th CENTURY MOTOR

Built in Sizes 12 to 300 H. P., 2 to 6 cylinders.

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THE SPRINGFIELD

Single and double cyl. heavy duty motors. Double and four cyl. speed motors. Two cycle, make and break or jump spark ignition.

SPRINGFIELD MOTOR CO.

Springfield, Mass.

Write for Catalogue

FLAWLESS DIE CASTINGS

Made by Van Wagner Patented Vacuum Process.

Thirty years' experience in compounding alloys.

VAN WAGNER DIE CASTINGS SYRACUSE N.Y. CASTINGS VAN WAGNER

E. B. VAN WAGNER MFG. CO., 701 Union Building, Syracuse, N. Y.

ARCO SPOTZOFF

Reg. U. S. Pat. Off.

The quickest, cleanest, easiest, snappiest METAL POLISH on earth. Your name on a post card brings you a sample.

The Atlantic Refining Co. Cleveland Ohio

Hitchcock's Automatic Bilge Bailer

Will make either fast or slow boats faster and at the same time keep the boat free of bilge water automatically. Write for complete detailed descriptive circular.

THE AUTOMATIC BILGE BAILER CO.

Department E. 130 Huntington Avenue, Boston, Mass.

8 DAY HIGH GRADE

BOSTON AUTO CLOCK

For use on AUTOMOBILES and MOTOR BOATS

QUALITY and PRICE Unapproachable

ASK YOUR DEALER

BOSTON CLOCK CO., 16 State St., Boston, Mass., U. S. A.

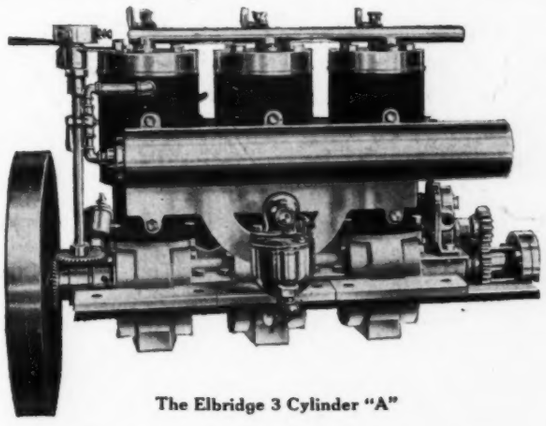
Why? Why? Why?

Why be out of date? Why use out of date paint? Why scrub off the bottom of your boat? Why not take advantage of new ideas? Why not be up to date? Why not buy Bridgeport Bronze Paint and never have to haul or scrub off your boat "in the good old summer time?"

Bridgeport Bronze Marine Paint Co.

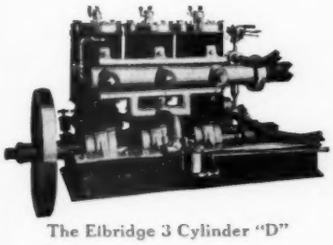
Cable Address, "Laquero Bridgeport." ***Bridgeport, Conn.***

Results The



The Elbridge 3 Cylinder "A"

Tell Story



The Elbridge 3 Cylinder "D"

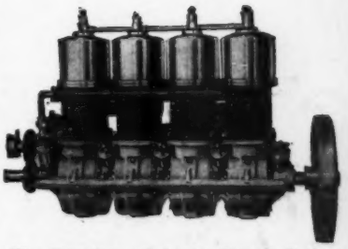
THE Elbridge V, a twenty-two foot boat, equipped with an Elbridge six cylinder Featherweight Engine, was entered in the thirty-two foot class at Peoria. She finished second although many larger boats of twice and three times her rated horse power competed. The winner of this event was equipped with ***steam engine.***

She finished second also in the twenty-six foot class.

The speed Championship of the Great Lakes was won by the same Elbridge V.

Every Novice Aviation Record in America was made with Elbridge Engines.

If you're looking for efficiency, economy and real satisfaction in your motor, write for our FREE catalogue.



The Elbridge 4 Cylinder Copper Jacket

ELBRIDGE ENGINE COMPANY

DEPT. M

ROCHESTER, NEW YORK

Arthur P. Homer, 88 Broad Street, Boston, Mass., New England Representative.

Friday Harbor, Wash., Oct. 11, 1910.

Scripps Motor Co.,
Detroit, Mich.

Dear Sirs:-

Referring to the 4 cylinder 15-20 H.P. Scripps engine which I purchased of you last June and which I installed in my 25 foot Racine launch, "Irene", I beg to say that the engine has given first class satisfaction in every way.

It has increased "Irene's" speed from 6 1/2 to 10 miles per hour, but better than that, in my opinion, the engine has proved absolutely reliable.

It has the quietest, smoothest running engine I have ever seen and the system of control is perfect. I have never had the slightest difficulty in making landings and have found that it is practically as flexible as steam.

I am particularly pleased with the oiling system and consider it as good as can be made. All in all, I am satisfied in every way with the engine and have no hesitancy in recommending a Scripps engine to anyone who desires an engine which is first class in every detail.

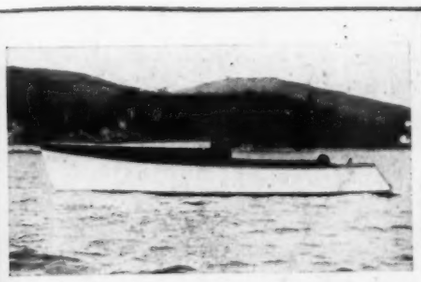
Yours very truly

Gene C. Gould.

Two More Letters Showing How Scripps Motors "Make Good"

Write For Detailed Information

Scripps Motor Co.
651 Lincoln Ave.
Detroit Mich.



Camden, Maine, Oct. 11th, 1910.

Scripps Motor Co.,
Detroit, Mich.

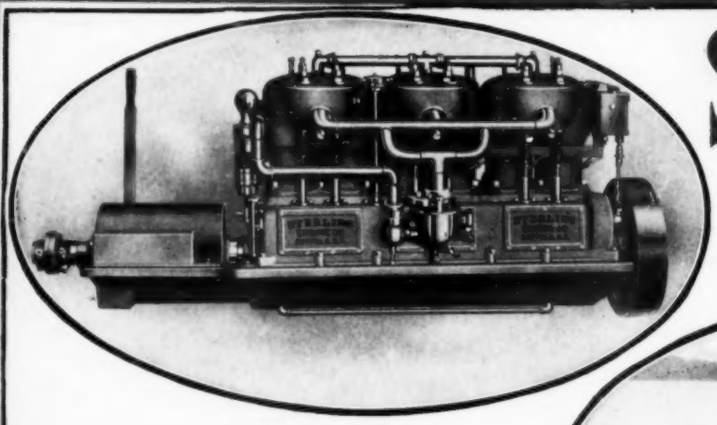
Gentlemen:-

I am very much pleased with my 8-10 H.P. motor, purchased of you in the Spring of 1909. I have used it two seasons in all kinds of weather, and have been in some bad places, but my motor has never stopped until I turned the switch. This is the fourth motor I have owned of different makes, and if I should want another tomorrow, I would but a Scripps. For power and economy they are in the lead.

My boat is a cabin cruiser, 26 ft. long, 6 ft. wide, makes 10 miles per hour, name India. I would advise anyone wishing a good motor to buy a Scripps. It saves time and money.

Yours very truly,
W. H. Winn,
Camden,
Maine.

STERLING ENGINES



THE ENGINE

4 CYCLE 8 h. p. to 240 h. p.
2-4-6-8-Cylinders
THE MARINE ENGINE OF QUALITY
Write for Catalogue

THE BOAT

Some of the Features Which Make Sterling Engines So Reliable and Efficient.

Mechanical Lubrication.
Adjusting screws on push rods.
Valves mechanically operated and on opposite sides of the engine.
Water jacketed exhaust manifold.
Reverse gear contained in an extension of the lower base.
Cylinders cast in pairs.

THOUSAND ISLANDS YACHT CLUB,
ALEXANDRIA BAY, N. Y.
September 27, 1910.

Sterling Engine Co.,
Buffalo, N. Y.

Gentlemen:

It is with great pleasure that I write you concerning my runabout, the "Idler," equipped with one of your 45-65 H.P. engines.

The "Idler" has been in commission from May 20th up to this date, and has completed over 5000 miles so far this season, with the prospect of doing a thousand more. She has been in three races, winning them all, defeating boats with higher power, even a boat containing a 180 H.P. engine, and not through a break-down of the latter.

The "Idler" has done 25.1 miles an hour, but for everyday purpose will run 23½ miles an hour as long as one wishes to go. She is considered the handsomest runabout on the St. Lawrence River, and is so easily handled that Mrs. Burnham has run her in each race except one.

I am mailing a picture of her, and also one of the "Intruder," which contains your 240 H.P. engine, the fastest boat in America today, bar the "Dixie." The "Intruder" has made six different mile trials at a mean speed of 36.17 miles an hour.

The "Idler" is 32 ft. over all, 5 ft. 6 in. beam, and will not swerve. I am,

Yours very truly,

FRED. K. BURNHAM.

STERLING ENGINE COMPANY, 1254 Niagara Street, Buffalo, N. Y.

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